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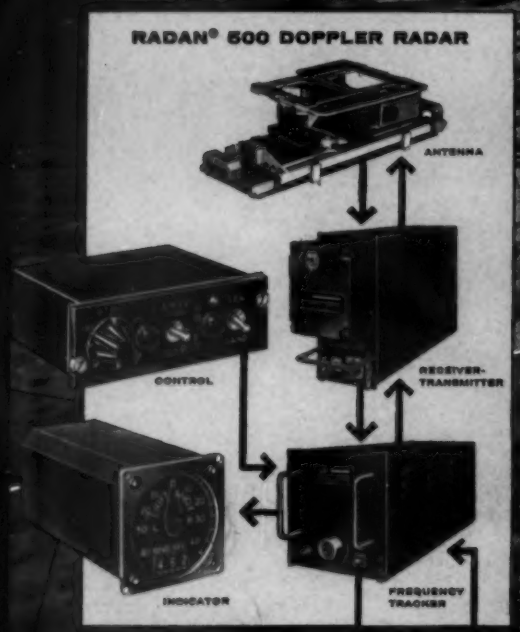
WORLD AIR TRANSPORTATION

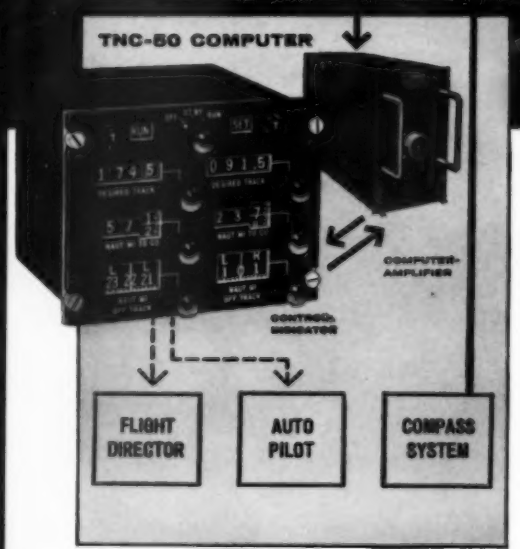
In This Issue:

- BEST AND WORST AT CAB: A SURVEY
- WHO'S ON TIME? HOW THEY RANK
- OUCH! THOSE HIGH LIMO RATES

RADAN 500 and TNC-50

the perfect navigation team for commercial airlines





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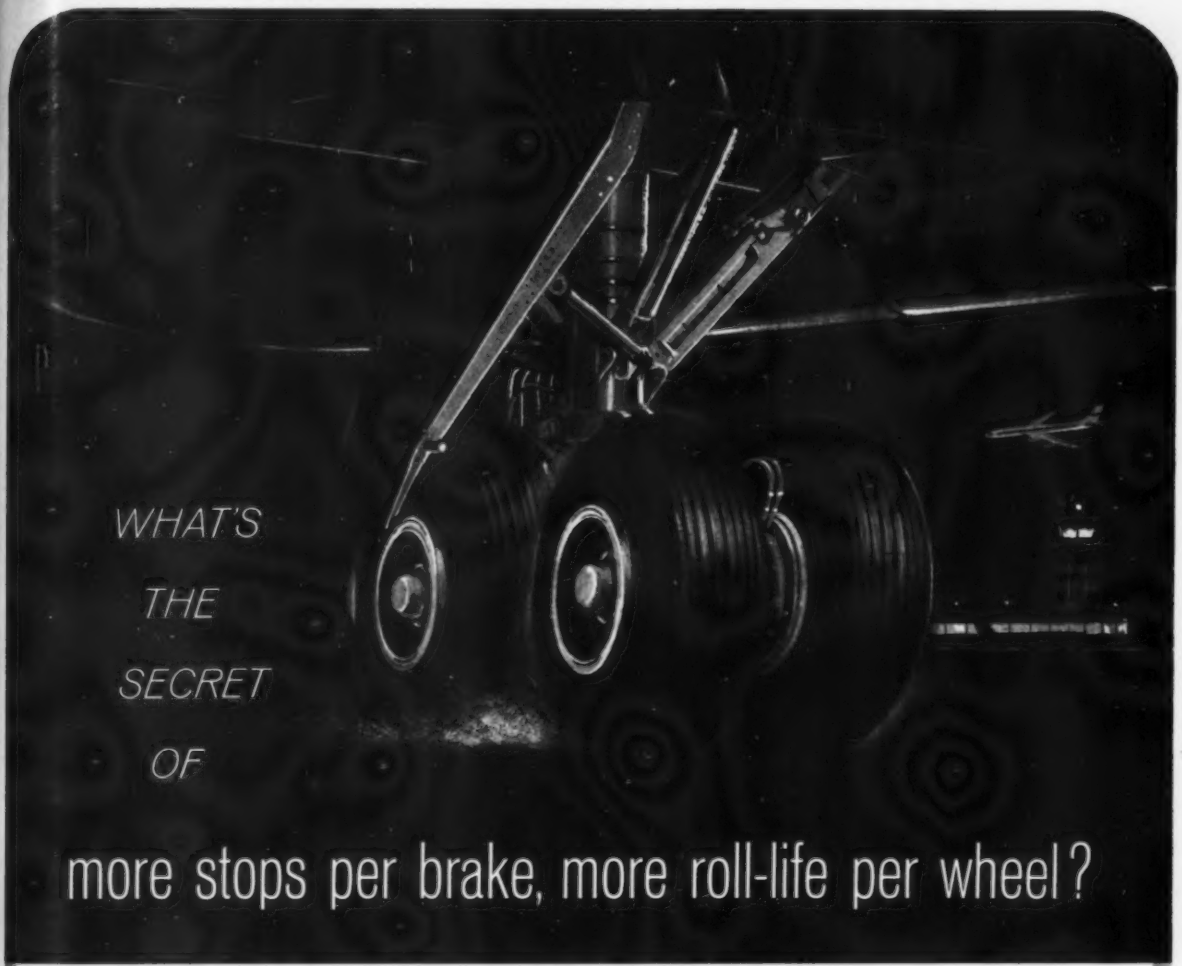

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airlift

WORLD AIR TRANSPORTATION

(U.S. Reg. Pdg.)

An AMERICAN AVIATION Publication Since 1937

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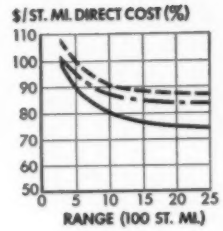
NO. 1 ALL TIME CAB MEMBER
That's the distinction won by Washington attorney L. Welch Pogue in *AIRLIFT's* exclusive survey. For complete results, of "best and worst" at CAB, see Page 25 and 26.



NEWEST COMER, THE DC-9
After one of the most extensive "paper" exercises on new transport development, Douglas has set down the performance of DC-9 short/medium range jet. For *AIRLIFT's* exclusive technical report, see Page 26.

ECONOMY OVERLOOKED?
No airline has ever asked a manufacturer to build the most economical transport. Why? Because the emphasis has always been on speed, says Bristol's Peter Masefield. For a forthright appraisal of where we go from here, see Page 29.

FOR SPEEDIER JET BAGGAGE
The airlines have explored many new approaches. The newest, pre-loaded containers, is United's answer on the DC-8. Continental selects better ground equipment. See how their solutions will work, Page 47.

On the Cover Lockheed's Electra takes on a new look as testing of Hamilton Standard 13½-ft. diameter, solid-aluminum propellers progresses. Their rounded tips present a marked departure from the square-tipped steel Aeroproducts-built props on all earlier Electras. The H-S props will see first service on KLM's Electras.

Coming next issue: *AIRLIFT's* special editorial feature on the "World's No. 1 Airport," New York's International (Idlewild) Airport.

General Electric puts

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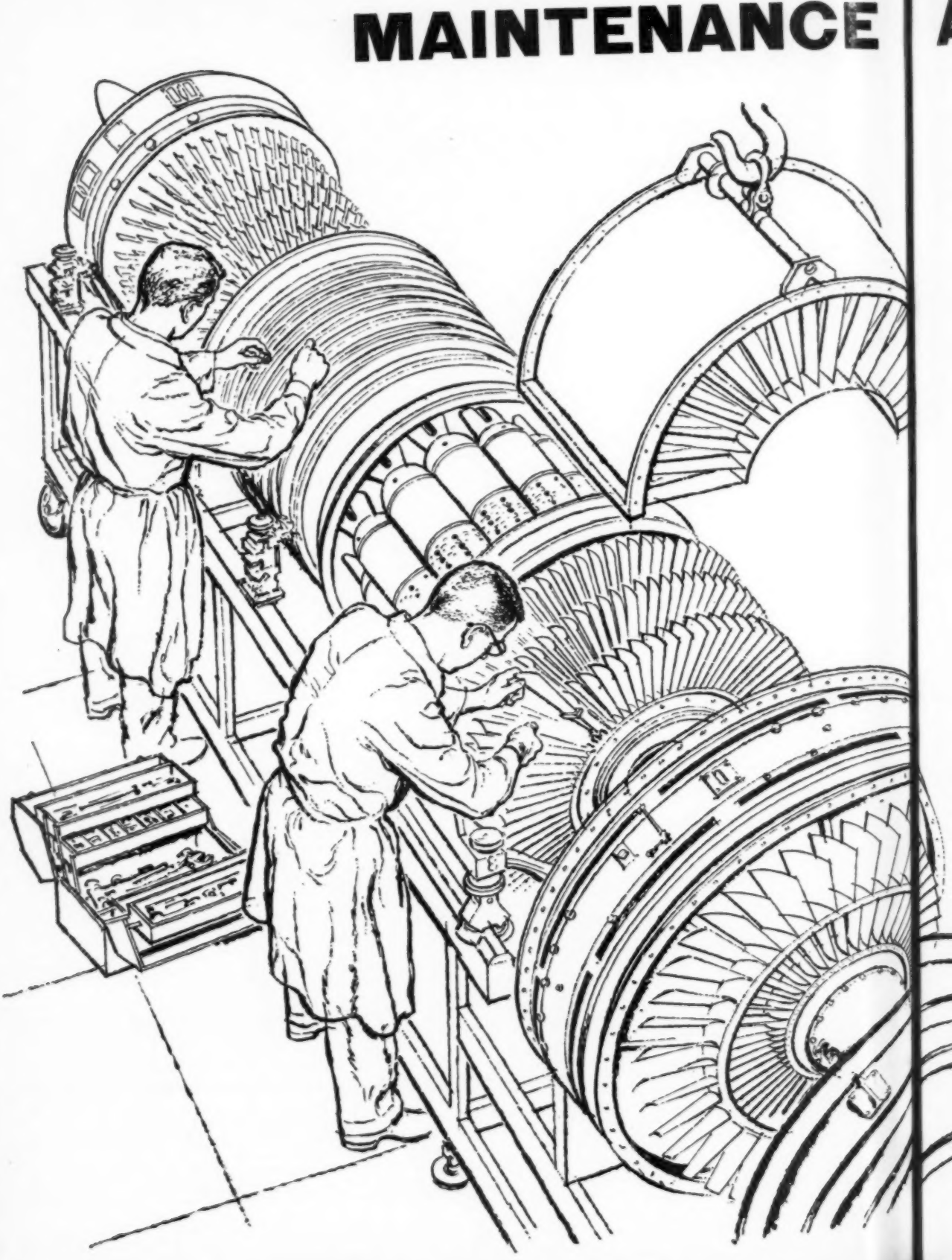

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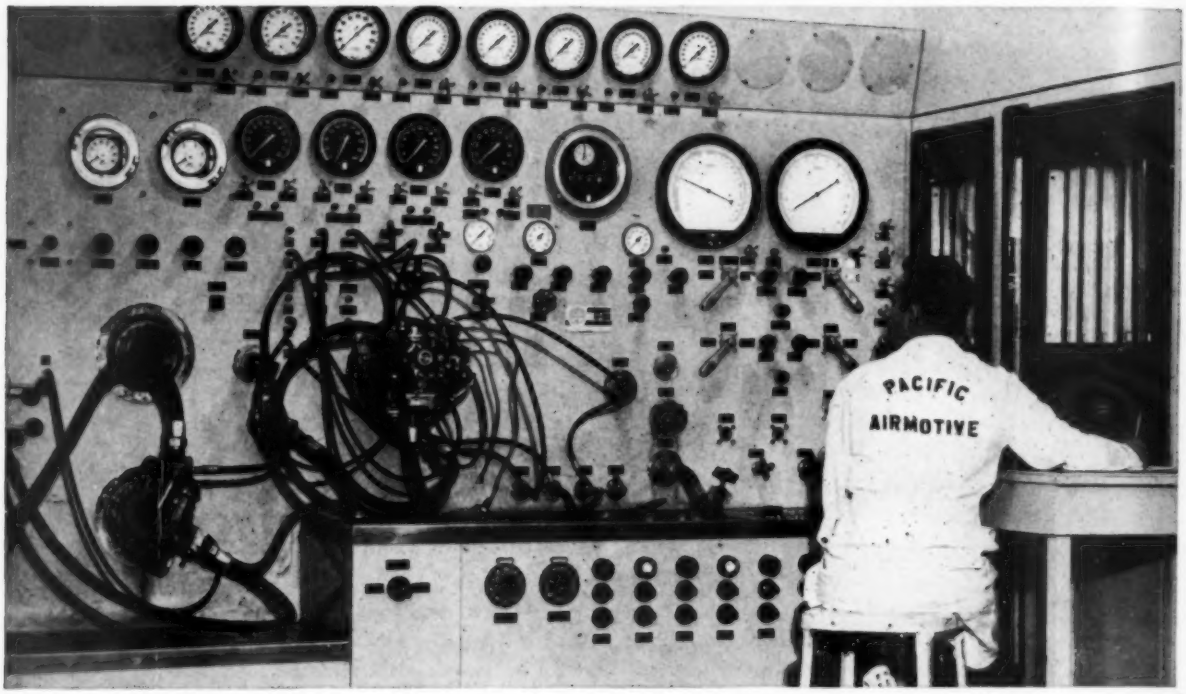
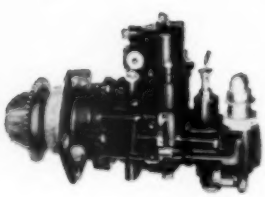
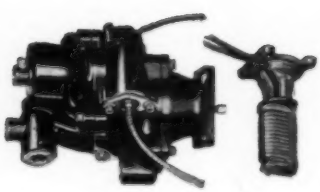
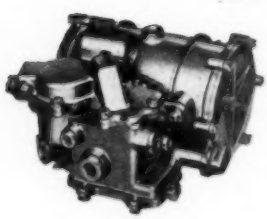




JT3 compressor bleed valve governor



JT4 compressor bleed governor



JT4 bleed valve actuator

JT3 compressor bleed valve & actuator

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Cargo: Is It True This Time?

Many great predictions were made for air cargo between 1946 and 1952. Enthusiasm was high. Doubters were decried. But the boom never got off the ground and much money was lost trying to make the rosy forecasts come true.

Is the outlook any sounder today? Is air cargo finally poised for that oft-postponed major growth?

Can one believe, for example, the prediction just made in a privately-issued university research study that air-cargo ton-miles will leap from a current level of one billion to between 30 and 40 billion in the next fifteen years? Or that air cargo revenues will leap from last year's $150 million to $4 billion in the same time?

Within reasonable margins, our answer is yes.

We were among the doubters ten and twelve years ago. It was then both unfashionable and unpopular to be skeptical of the lavish predictions being made. But we thought the yardsticks were based too much on wishful thinking and not enough on realities. The elements of success were lacking.

But those same elements that were largely lacking a decade ago are present and tangible today. Perhaps a figure of 40 billion ton-miles domestic and U.S. foreign may be on the rosy side, but the elements of a very substantial and vitally important air cargo growth are here. Air cargo will be big business.

The key is simple economics. A decade ago the airplane offered speed, but the premium for speed was too high for the mass market. There was no way to lower rates sufficiently to become competitive with surface and make a profit.

A combination of vital factors will now make it possible to narrow the gap between air and surface rates sufficiently for the airplane's speed to become a genuine sales tool.

Turbine-powered aircraft will be the key to more economical operation, especially with the program of guaranteed loans and other stimuli being sparked by Senator Mike Monroney and FAA Administrator Elwood Quesada. The mere transfer of military shipments from the various military airlines—which have no reason to exist—will give great impetus to commercial operators and airframe manufacturers.

In the interim, competition will be stepped up. Conversion of passenger-carrying piston equipment is moving ahead rapidly. The use of larger types will permit lowering of rates. Industry itself is becoming aware of the advantages of air. Greater capacity means more sales effort. A momentum will be granted that will be in full force when turbine equipment arrives to bring about further rate reductions into that very substantial shipping market which means big business for the entire airlift market.

The outlook is not only very good, but for the first time all of the elements needed for expansion are either here or on the way. It is not at all improbable that a thousand new all-cargo aircraft will have been ordered within the next fifteen years.

Opening The Door

The date of July 16, 1959, will be noted in aviation history. It was on that day that Postmaster General Summerfield transmitted to Congress a request to remove the barriers which have kept the American people from receiving the postal service they pay for.

There was a lot of unheralded drama in that request. The Post Office Department wants authority to put *any and all classes of mail* on certificated air carriers whenever and wherever air offers advantages over surface.

The request was even broader than had been expected. *All classes of mail* mean second, third and fourth, as well as first. Those three categories account for the bulk of tonnage, including publications and parcel post.

Obviously the Post Office is not going to turn over all the mail to the airlines the minute it gets Congressional authority. But it is highly significant that the Post Office has asked for complete authority to utilize air whenever it sees fit.

A good starting point, for example, would be to place all classes of mail on the local carriers, thereby utilizing much unused capacity and reducing subsidy payments. And it is high time that Alaska, Hawaii, Puerto Rico and the Virgin Islands cease being penalized for geographical separation; all mail should be flown to and from those points.

With Congress being a month away from adjournment until January, it is unlikely that the Post Office request can get completed action this year. In addition to the time element, the potent railroad lobby lost no time in getting organized to oppose the legislative request. Billions of ton-miles and hundreds of millions of dollars are ultimately at stake. A battle can be expected but the outcome cannot be in doubt. The rails simply cannot perform the whole job much longer. The public and industry demand better postal service. The PMG has triggered the first move. History is in the making.

From the Editor's Notebook

Of Jets and Scheduling

Jets are doing more than setting popularity and load factor records. They're doing some strange things to traffic flows.

At lunch the other day, Oz Cocke, TWA's system

general manager, told me that east-west customers at such on-line stops as Indianapolis and Columbus are now flying to Chicago in order to take the jets, even though elapsed travel time might be more. Cocke says jets have disrupted traditional traffic flows generally throughout the system in a way nobody could have foreseen.

When TWA added a San Francisco dog-leg to one of its New York-Los Angeles services, some traffic people thought the airline was out of its mind. Not so. Load factor on the short hop has been very high. Why? It's the shortest and cheapest jet flight anybody can buy and the demand is high. Families have been flying from Los Angeles to San Francisco, dining out at Fishermen's Wharf or some other famed spot, returning to Los Angeles on the turnaround flight. An evening jet lark for the kids. Nothing like the lure of jets has been known in the airline business before.

Tale of Two Trips

We've had two transatlantic crossings with jets, both westbound. Last November we flew on a Pan American 707 from Paris to New York with a 6 p.m. departure and timetable arrival of 9:35 p.m. same day. We missed by an hour but who can complain about a ten and a half hour flight westbound with a refueling stop in Iceland?

The point was that with a six hour time differential, we couldn't adjust the way we felt to what the Idlewild clock said. True enough, it was only 10:30 in the evening in New York, but it was 4:30 in the morning Paris (and our constitution) time. Weather and connection complications in New York were such that it was 8 a.m. Paris time before we got to bed. So what started out as an exhilerating jet flight to New York turned into a very tiring all-night journey—through no fault of the airplane or the operator. (Matter of fact the PAA jet cabin service was, if anything, almost too elaborate.)

Coming back from the Paris air show in June we took a 12 noon departure from London on our first Comet IV jet flight. We were at home in Washington for dinner at the regular hour. Sensational. True enough, it was 12 hours elapsed time from London to home, even with a refueling stop at Gander, but it was only midnight in London. Even more important psychologically, the same sun that was directly overhead when we left London was still well above the horizon when we drove up to the house in Washington. Such a trip is a thrill—the fruits of the jet age.

Which Passenger to Suit?

It's a tough problem any way you tackle it. Most savvy traffic people will argue, probably, that departure times should suit the whims and desires of the passengers, and that most passengers on overseas trips think more in terms of departures than arrivals. But we have a strong hunch that the experienced, regular traveler is more concerned with how he feels on arrival, and the time of arrival. There are records of transatlantic regulars who tried the jets and then went back to longer piston flights with berths because of greater comfort and convenience due to scheduling. They could get a full night's sleep, clean up leisurely, enjoy a hearty breakfast, and be ready for a full day on arrival.

Jets were to eliminate those night crossings, but have only done so partially to date. Nobody has to worry right now about scheduling, because every seat is filled. But when capacity increases and jet novelty wears off, we have a strong feeling that scheduling is going to be more important than most airline people think. Except in tourist seasons when space is at a premium. The regulars are going to demand daytime flights or keep on pistons with berths. Anyway it's a good subject for conversation and speculation.

Recklessness with Safety

Last March 21 the CAB issued what appeared to be an innocuous little decision making what seemed to be routine changes in procedures for airline accident investigations. Instead of being innocuous, the action turned into dynamite. The CAB had decided to make available in advance of an accident hearing such things as exhibits and preliminary findings for the benefit of insurance companies and the like.

But the material is in the general public realm. So for reasons which are strange indeed, *The Washington Post* decided to do a sensational reporting job on Capital's accident of May 12, using all of the advance data, and timed for the very day the hearing began on July 8. It was a below-the-belt editorial effort, throwing "conclusions" all about the place before the hearing ever started, and giving undue emphasis to a tragic accident being investigated. Why bother to have accident investigations if CAB is to let everybody pick out bits and pieces of evidence and draw their own conclusions before a hearing starts?

We think CAB was in error in permitting its people to talk so much in advance. This is not a matter of covering up news, it is a matter of responsibility in reporting and news handling. The time when all of the evidence should be available is at a hearing. No conclusions should be reached until the final report is written. Too many CAB people have been hogging TV and press limelights as experts even before all the evidence is in. The controls need to be exerted at the top—the five members. Or is CAB fully prepared to make a gala promotion out of every accident?

The Idlewild Mess

A furor was raised and investigations started over the disgraceful Roman Holiday at Idlewild when that 707 lost part of its landing gear on takeoff and returned with a full load. But nowhere have we seen the question asked as to how this matter got to the press, radio and TV services in the first place. Not that we favor covering up news, but the blame rests first on the person who sparked the incident as a big suspense show, and second, on the TV and radio stations who kept half the nation on edge. TV and radio drew tens of thousands to the airport, clogging all roads and creating a Roman Coliseum spectacle. Did anyone warn TV and radio that these media were creating an emergency of great danger? Let the investigators start with the beginning on this one. Tightening security at the airport won't solve the problem of hordes of people rushing to an airport hoping to see a spectacle. The answer is a sense of responsibility by TV and radio.

And shortly after the PAA episode, another leak occurred when an American Airlines' 707 couldn't get its gear down. Another suspense drama was broadcast widely on TV and radio, but this time the Idlewild guards diverted the curious. The 707 crew cranked down the gear and nothing happened except to create more hysteria. The New York Port Authority bears its share of responsibility. But we still would like to know how this stuff gets to the TV and radio stations for them to promote a circus and potentially explosive situation.

Wayne W. Parrish

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Boosts for *AIRLIFT*

To the Editor:

I think your June *AIRLIFT* was one of the most interesting issues that I have ever read. Your editorial on Mr. Quesada was outstanding. Your special feature articles, "Mass Cargo Breakthrough, Swing-Tail 707 is Boeing's Cargo Entry, and Lockheed's 3.9¢ per Ton-Mile Freighter," were excellent. Naturally, I am interested in the cargo end of the business.

I shall continue to look forward to subsequent issues of *AIRLIFT* containing such vital and interesting articles.

HAROLD W. OTTO-Regional Mgr.
Air Mail-Air Express
American Airlines, Chicago, Ill.

To the Editor:

I have long appreciated your forthright comments as expressed in AMERICAN AVIATION editorials, to the point where a word of appreciation was in order. However, like most people, I have procrastinated and not followed through.

I have just finished reading your comments on "Hurry-Up Quesada" in the June issue of *AIRLIFT*. I have always admired your ability to concisely sum up a situation, but this time you have outdone yourself.

It is only to be expected that a man with your ability for forthright expression would have a keen appreciation for a man like Quesada. All credit to you for focusing the spotlight of public appreciation where it belongs.

"Pete" Quesada will certainly never win any medals for popularity in government circles, but he certainly is (with you) a #1 boy in my book.

Keep up the old fight. You would be surprised how many of us "little guys" are with you.

C. J. SWAIN, Factory Representative
Zephyr Manufacturing Co. Inc.
Inglewood, California

To the Editor:

Haven't as yet had any prior chance to tell you that I think your new *AIRLIFT* is an excellent, interesting and most useful publication. I am going to await each new issue with much personal interest.

Your editorial "Hurry-Up Quesada" in your June 1959 issue is, in my humble opinion, particularly timely and factual—excellent to say the least. I think Pete is doing a marvelous job!

D. S. LITTLE
Staff Mgr.-Airway Aids
American Airlines-New York

Growing Pains, Tummy Aches

To the Editor:

Regarding your trend on Air Traffic Control Association (*AIRLIFT*, June), your established interest in this association, also your present concern for its welfare, are highly regarded by ATCA members.

I think you will agree that 7,100 air traffic controllers will find means of applying "climb restrictions" to overambitious members and have appropriate "holding instructions" left over for "insiders."

Please be assured, sir, that fledgling ATCA's growing pain is in the nature of a tummy ache. This should respond more readily to internal than to external treatment.

EUGENE G. HIRSCH
Member, ATCA Council
Seattle, Wash.

60 Years, No Change

To the Editor:

While reading the May installment of "EN ROUTE" in *AIRLIFT* I was struck by the familiar appearance of the picture of the WWPs in front of the Collective Headquarters in the fishing village on Lake Baikal. I went to a little album I have and found the photograph of which the enclosure is a copy made with my Polaroid copier. I'd almost be willing to swear that it is the same house—the three front windows with shutters and the fancy capitals (because of the size of my copier, one of the windows had to be cropped in this copy), the sloping roof with the chimney at the back end of the ridge, and the fenced yard alongside.

The interesting thing is that this photograph showing my father standing in front of the conveyance (three horse-power) which was about to transport him down to Urga (now Ulan Bator), the Capital of Mongolia, some 300 miles away, was taken in 1900!

He too, nearly two years later, went on to Peking, not by jet aircraft, but on camel-back (19 days of it) across the Desert of Gobi. The time in Mongolia was spent as engineer for a gold-mining operation.

CAPT. RALPH S. BARNABY (USN Ret.)
Philadelphia, Pa.

EDITOR'S NOTE:

The fancy wooden frames or shutters have never changed. They're all of one or two patterns. Like just about everything else in the USSR, there's rarely any deviation, even in sixty years' time.

More Facts on X-Ray

To the Editor:

Regarding the roundup of airline experience with X-ray for inspection (*AIRLIFT*, May 6) TWA uses X-ray for routine operations at overhaul only although unusual circumstances may require occasional use at line stations. We have been inspecting by X-ray for three and one-half years and on two units—a Norelco MG-160 and a Triplett & Barton TRI-IND-X 275 KV (the latter located at 831 N. Lake St., Burbank, Calif.).

We estimate the cost per X-ray photo at $5.00. As to savings, in the inspection of the lower wing skin of inboard Constellation nacelles, according to Airworthiness Directive 58-1-5, 460 manhours would have been required without X-ray. With X-ray, this was cut to 50 manhours. Also, in the inspection of oil coolers, it takes 98 manhours to retube a cooler, but X-ray reduces replacement to 43 manhours.

In addition to time savings realized

(*Contd. on page* 69)

When & Where

AUGUST

Aug. 10-14—National Flying Farmers Assn., 14th annual convention, Colorado State University, Fort Collins, Colo.

Aug. 11-13—Wright Air Development Center, symposium on structural aircraft fatigue problems, Dayton-Biltmore Hotel, Dayton, O.

Aug. 18-20—ATA Reservations Committee, Benjamin Franklin Hotel, San Mateo, Calif.

Aug. 18-21—Institute of Radio Engineers, western electronic show and convention, Cow Palace, San Francisco.

SEPTEMBER

Sept. 2—International Civil Aviation Organization, Meteorology Div., 5th session, Montreal.

Sept. 3-6—Air Force Assn., convention and panorama, Miami Beach, Fla. (Make reservations with AFA Housing Bureau, P. O. Box 1500, Miami Beach, Fla.)

Sept. 5—Federal Aviation Commission assembly, Swiss Transport House, Lucerne, Switzerland.

Sept. 7-13—Society of British Aircraft Constructors, annual flying display and exhibition, Farnborough, Hants, England.

Sept. 14-19—International Agricultural Aviation Conference, College of Aeronautics, Cranfield, England.

Sept. 16-17—ATA Ground Equipment Committee meeting, Miami.

Sept. 21-22—Los Angeles Chamber of Commerce conference on planning and designing urban helicopter facilities, IAS Building, Los Angeles.

Sept. 22—International Air Transport Assn., 1959 fall conference, Honolulu.

Sept. 23-24—Airwork Corp., engine and operations symposium, Millville, N.J.

Sept. 30-Oct. 2—Southeastern Airport Managers Assn., Durham, N.C.

OCTOBER

Oct. 5-7—Institute of Aeronautical Sciences, 7th Anglo-American aeronautical conference, technical sessions, Hotel Astor, New York City.

Oct. 5-10—Society of Automotive Engineers, national aeronautics meeting, aircraft, manufacturing forum and aircraft engineering display, Ambassador Hotel, Los Angeles.

Oct. 6-8—National Business Aircraft Assn., 12th annual meeting, Hotel Leamington, Minneapolis.

Oct. 6-8—National Airports Conference, co-sponsored by American Assn. of Airport Executives and University of Oklahoma, Norman, Okla.

Oct. 7-10—Air Traffic Control Assn., annual meeting, Biltmore Hotel, Oklahoma City.

Oct. 12—International Air Transport Assn., 15th annual general meeting, Tokyo.

Oct. 12-14—National Assn. of State Aviation Officials, Mark Hopkins Hotel, San Francisco.

Oct. 12-14—National Defense Transportation Assn., 14th annual national convention and logistics forum, Seattle.

Oct. 19-24—American Society of Travel Agents, 29th annual World Travel Congress, Havana.

Oct. 20-22—Air Transport Assn., engineering and maintenance annual meeting, Hotel Monteleone, New Orleans.

Oct. 20-22—Air Line Dispatchers Assn., 17th convention, Dunes Hotel, Las Vegas, Nev.

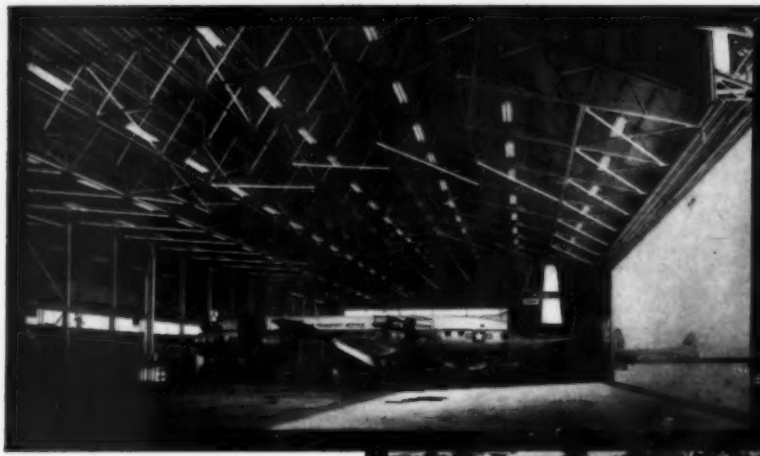
NOVEMBER

Nov. 9-20—American University, thirteenth annual air transportation institute, Washington, D.C.

Nov. 17-19—Aviation Distributors and Manufacturers Assn., 34th meeting, Diplomat Hotel and Country Club, Hollywood, Fla.

Nov. 18-19—Airlines Electronic Engineering Committee, Hotel Statler, Dallas.

Nov. 18-20—Vickers Aircraft Hydraulics Conference, Park Shelton Hotel, Detroit.



HANGAR of the MONTH*

*The State of Connecticut built this hangar on their Bradley Field, Hartford-Springfield Airport base for Flight Enterprises, Inc. as an overhaul and maintenance base for military Air Transport aircraft. This hangar is 140' deep x 415' long with 52 foot tail gate clearance.

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Traffic Gains Again in June

Traffic surge continued in June. Trunklines' 2.61 billion passenger-miles were 14.7% ahead of same month last year. Increase of only 5.7% in available seat-miles jumped load factor to 68.13%, up 5.32 points. Coach traffic, which was 44% of total, showed the biggest gain—16.9%—and had a load factor of 73.02%. First-class increase was 12.9%, load factor reached 64.68%.

After a fast start, talk of turbine engine leases is falling off. Pratt & Whitney, for example, has only one taker, American Airlines. It has set up a subsidiary, Amlease Corp., to handle the deal.

More DC-8 Orders Coming?

More big jet orders are expected. Douglas sales department estimates it should sell 20 more DC-8s, perhaps even 30, before the end of the year. Orders will come in small packages. Price of the Douglas jet is being hiked by amounts ranging up to 10% effective August 15. Reason: rising cost of labor and materials.

A look at the Caravelle has been taken by United Air Lines, heretofore considered strictly in the four-engine camp for jets. The UAL team that visited France is reported to have been impressed by the quietness of the Caravelle, but it's questionable whether the plane would fit the airline's operations.

Turbines Head for So. America

The race is on to impress the South American turbine market. Lockheed is dispatching its Electra turboprop demonstrator there on a tour starting in mid-August. It should arrive just ahead of its European turbojet rival, Sud Aviation's turbojet Caravelle, due to be delivered to Varig in September.

More airline combines may be in the making. Reported trying to reach agreement were British European Airways and Greece's Olympic Airways, and BOAC and Air India. BEA would make Comet 4s, crews and facilities available to Olympic, and schedules would be integrated. Olympic would get fifth freedom rights at London on a New York route, BEA would get similar rights at Athens. BOAC-Air Indian talks are in the exploratory stage.

TWA Looks at Cargo Market

Big study of the cargo market is underway at TWA. For years, the company has been neither in nor out of air cargo; it's just been a sideline. Now, it will either get all the way in or all the way out. And the betting is that it will take the plunge into cargo in a big way.

Future plans for one of the biggest local service networks, Ozark, seem to rest with 80-year-old Floyd W. Jones, Springfield, Mo., banker and vice president and treasurer of the airline, who holds about 30% of the stock. Plenty of rumors are afloat.

CAB Changes In September

White House has decided not to send up nominations of successors to CAB chairman James R. Durfee and member Harmar Denny until September. Congress will probably be home by then, won't confirm new members until next year. Durfee will get his judgeship, Denny will retire.

No-reservations flights on a major route are being seriously considered by a domestic trunkline. There may be developments soon.

State Dept. Holds the Key

The heat's being put on the State Department by U.S. airlines to do something about the transatlantic situation. U.S. carriers feel that smaller foreign flag lines are carrying more than their proper share of the traffic. Pan American has almost been holding its own against foreign competition in the past few years, TWA has been losing ground. In six years, PAA's traffic declined from 27.5% of total to 26.4%; TWA's dropped from 24% to 15.2%. In the opinion of some government officials, only answer is to change long-standing policy and enforce capacity restrictions.

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Douglas Talks Cargo Jet Specs

Proposals for two all-cargo turbofan aircraft, still in the paper stage, were revealed by Douglas Aircraft Co. to legislators who have been working on a bill to support development of cargo planes. One Douglas proposal is for a CX model, designed to meet military requirements; the other covers a CX Junior, to meet needs of commercial. Both would be powered by four Pratt & Whitney TF75s (JT4D), with dry thrust of 22,750 lbs. or wet thrust of 25,750.

The CX is 167 ft. long, 58 ft. 7 in. high with wing-span of 177 ft. Estimated gross takeoff weight is 482,000 lbs., and 100,000 lbs. of cargo could be carried 4,300 nautical miles, or 50,000 lbs. 6,000 nautical miles. Plane would be swing-tail; landing gear is the "kneeling" type.

CX Junior is 163 ft. 4 in. long, 46 ft. high, wingspan 144 ft. 11 in. Cruise speed would be about Mach 0.8 with top speed of 480 knots, carrying an 80,000-lb. load. Range is given as 3,700 nautical miles nonstop.

The CX's engines would be mounted two to a pod, with one pod mounted beneath each wing. Junior's engines would be in four separate pods.

Go Ahead for the Super Hercules?

The U.S. all-cargo airlines continued their leadership in development of turbine, all-cargo transports as Slick Airways ordered six Lockheed Super Hercules transports for delivery in 1962 at a cost of $22 million.

The order marked the first commercial airline business for Lockheed's Georgia Division and the first order for the Super Hercules. Lockheed will build the Super Hercules if it gets a military order for 10 aircraft. Earlier (*AIRLIFT*, June), The Flying Tiger Line and Seaboard and Western placed orders for Canadair's CL-44D.

The Slick order includes Lockheed Electras at $16 million to be used on an interim basis if lease arrangements can be negotiated with other operators to lease them by the end of 1962. In a brief filed with CAB, Slick said it proposes to be back in full-scale common carrier airfreight by 1960.

Another New Rule for Jets

The FAA, seemingly intent on perpetuating the confusion originally engineered by the Civil Aeronautics Board into jet performance regulations, adopted a new one (Special Regulation SR-422B) effective Aug. 29, 1959. It introduces the so-called "stopway" concept of lengthening runway by giving credit for overrun areas and eases the twin-engine net flight path gradient via a reduction from 1.0 to 0.8%. Deferred for further consideration is an earlier CAB proposal dealing with lateral obstacle clearances in the takeoff flight path.

AA Goes "Turbofan' on All Jets

In a modification expected to cost at least $20 million, American Airlines will change all its Boeing 707s to Pratt & Whitney turbofan engines. Faster service, greater economy, less noise, and ability to operate airports with limited runway lengths were given as reasons for the move.

Conversion to the JT3D-1, which has normal rating of 13,000 lbs. thrust, will begin next year as soon as the turbofans are available. Cost of converting the powerplants is about $390,000 per plane, and there will be other incidental expenses.

AA is buying 50 Boeings, 25 long-range, 25 intermediate-range. By the time turbofans are available, 35 planes will have been delivered and will be modified later. Remaining 15 will be delivered with turbofans installed. AA also has on order 25 Convair 600s powered by General Electric CJ805-21 turbofans.

American is the first Boeing operator and second airline to go to P&W fan engines. KLM was first, specifying them in a reorder for DC-8s (*AIRLIFT*, July).

ACC Reports on Used Transports

Almost as a post-mortem to the recent barrage of surplus transport statements (*AIRLIFT*, July) Air Coordinating Committee issued its long-awaited recommendations on disposal of used U.S. transports. Highlighting a five-point plan of action, ACC called for (1) a statement of U.S. government position on the subject; (2) a government attack on financing problems; (3) a single focal-point for disposal action; (4) control of military release of surplus planes on commercial market; and (5) more investigation.

ACC predicted that 843 U.S. and 600 foreign airline aircraft will become surplus by the end of 1960, plus 250 U.S. military. The total: 1,693 transports!

S&W Offers New Military Lift Plan

Seaboard & Western Airlines has offered to haul military cargo across the Atlantic on its regularly scheduled flights at tariff rates filed with CAB. In a number of cases this would enable the Defense Department to move supplies cheaper than by contract carrier.

S&W said it would immediately make available space for up to 1,000 tons monthly in each direction on regular flights and would boost this to 1,250 tons in November. It added that if Defense elected to use the facilities offered "within a reasonable time after signing the proposed agreement, Seaboard will undertake to place orders for additional long-range heavy-lift turbine-powered cargo aircraft." MATS is studying the plan.

Boeing Intercontinental Certificated

The Boeing 707-320 Intercontinental was certificated by the FAA, and the first model was delivered to Pan American World Airways. The plane, powered by Pratt & Whitney JT4A-5 engines rated at 15,800 lbs. thrust, was approved for maximum gross weight of 302,000 lbs. Fuel capacity is 21,351 gallons. Maximum range is more than 5,000 miles, cruising speed is 575-600 mph.

Mohawk Buys Four 440s

Mohawk Airlines has bought four Convair 440 Metropolitans from Convair. The first of the 50-seat planes will go into service this month. Mohawk's purchases leaves only five 440s unsold. Before it shut down the line, Convair built 16 of the planes on speculation, but sales were slow until recently. In addition to Mohawk, Convair's sales in the last few weeks have included one plane to a corporate customer and two to a foreign government.

Iberia May Order DC-8s

Iberia, Spanish airline, will buy three turbofan Douglas DC-8s, if the Spanish government approves. Decision to buy the DC-8s was made by the airline's administrative board two weeks ago. The government would finance the purchase.

Meanwhile, Lufthansa ordered Rolls-Royce engines for use on its four Boeing 707-430 Intercontinentals. Engines develop 16,000 lbs. thrust each.

Turbines, Directives and "Bugs"

A strong overplay on the dramatics of an emergency landing of a Boeing 707 at New York's Idlewild Airport (see p. 10) coupled with a succession of 707 hydraulic system "bugs" spurred FAA into action with the first airworthiness directives on U.S.-built turbine aircraft. For the most part, they confirm action already taken by manufacturers and airlines.

One order called for preflight and 60-hr. inspection of the beam joining the fore and aft trucks of 707 gear. It is considering a directive confirming a "fix" carriers are now making in the hydraulic system pump circuit.

Another FAA order calls for a permanent repair in the No. 4 wing skin plank (top side, right wing of Lockheed Electra) after skin cracking was experienced on a number of the Lockheed turboprops.

"Bugs" also affected operation of two other turbines. Shortly after acceptance of its first DC-8, a water injection system pump malfunction caused overpressurization of the water tank resulting in minor wing damage and a 10-day layup of the big jet for repairs.

Allegheny Airlines' experimental Convair 540 was withdrawn from service temporarily due to a number of engine bearing troubles believed traceable to "brinelling" of bearings caused by road shock from overland shipment.

End to Near-Miss Reports

The three-year-old near-miss reporting program was canceled by FAA and CAB, wiping out immunity from prosecution for pilots reporting their own close calls. CAB said it needs no further near-miss data. Its regulation had guaranteed a pilot that he wouldn't be held responsible for violations of flight rules solely on the basis of his report to CAB. FAA and the former CAA had never granted immunity; they received near-miss reports through their own channels and had meted out punishment to pilots.

ALPA Opposes Pilot Age Limit

Air Line Pilots Association has challenged FAA's proposal to restrict command of jets to pilots under 55 years of age, unless they held type ratings before reaching that birthday, and to impose mandatory retirement at 60 (*AIRLIFT*, July).

ALPA president C. N. Sayen said FAA "should concentrate on providing protection against in-flight incapacitation of the types which occur most frequently to all pilots irrespective of age."

According to CAB reports, there have been only two fatal accidents since 1946 involving captain-pilots 50 years of age or older, he stated, adding that existing rules already call for compulsory retirement of a pilot of any age who cannot meet current standards.

Hector Dissents on Accident Report

CAB member Louis J. Hector, well known for his sharp dissents (*AIRLIFT*, July), has disagreed with an accident report. It marked one of the few times a dissent has been filed in such a case.

The majority said the probable cause of a Capital Airlines accident during a 1958 training flight was that the instructor-pilot "failed to take control of the aircraft in sufficient time to prevent a critical loss of altitude" following the trainee-pilot's "failure to maintain minimum-controlled speed during takeoff."

Hector said the cause should be failure to maintain minimum-controlled speed. CAB has always tried to keep legal conclusions out of accident reports, and findings in the areas of responsibility and liability should be left to FAA and the courts, he added.

FAA Plans Rule on Drinking Aloft

In a proposed regulation to be effective in September, Federal Aviation Agency forbids any airline passenger from drinking "any alcoholic beverage aboard an air carrier aircraft unless such beverage has been served to him by the air carrier operating the aircraft." Airlines would also be prohibited from serving people who are or appear to be intoxicated.

Penalty for violating either rule is $1,000. FAA's reason for the regulation: "The Administrator now finds that the drinking and serving of alcoholic beverages aboard air carrier aircraft must be controlled to the extent necessary to provide adequately for safety in air commerce."

Briefs

Bonanza Air Lines plans to acquire Apache Airlines, Arizona intrastate operator. Apache will transfer all its stock to BAL in exchange for more than 17,000 BAL shares. M. L. Clements, owner of the intrastate line, will be division operations director of the Apache division. Company operates from Phoenix to Tucson, Nogales and Ft. Huachuca and Douglas-Bisbee. Deal is subject to CAB approval.

Federal Aviation Agency's National Aviation Facilities Experimental Center, Atlantic City, has leased, with option to buy, a Grumman Gulfstream turboprop. Plane will be used as a flying test bed for experimentation in air traffic control problems from sea level to 35,000 ft.

Air Force will sell 110 C-46s at prices ranging from $50,000 to $60,000 each. Sales will be on an "as is, where is, first come, first served" basis. Planes are at Davis-Monthan AFB, Tucson, Ariz. Information is available from National Bidders Control Center, Kelly AFB, Tex.

Daylight economy coach fares were put into effect by National, Eastern and Northeast between New York and Miami (*AIRLIFT*, July). One-way fare is $45 plus tax, about the same as rail coach.

British Overseas Airways Corp. will resume London-South America flights on Jan. 25, 1960, using Comet 4s. South American service was suspended in 1954 because of an equipment shortage. There will be twice-weekly flights from London to Madrid, Lisbon, Dakar, Recife, Rio de Janeiro, Montevideo, Buenos Aires and Santiago.

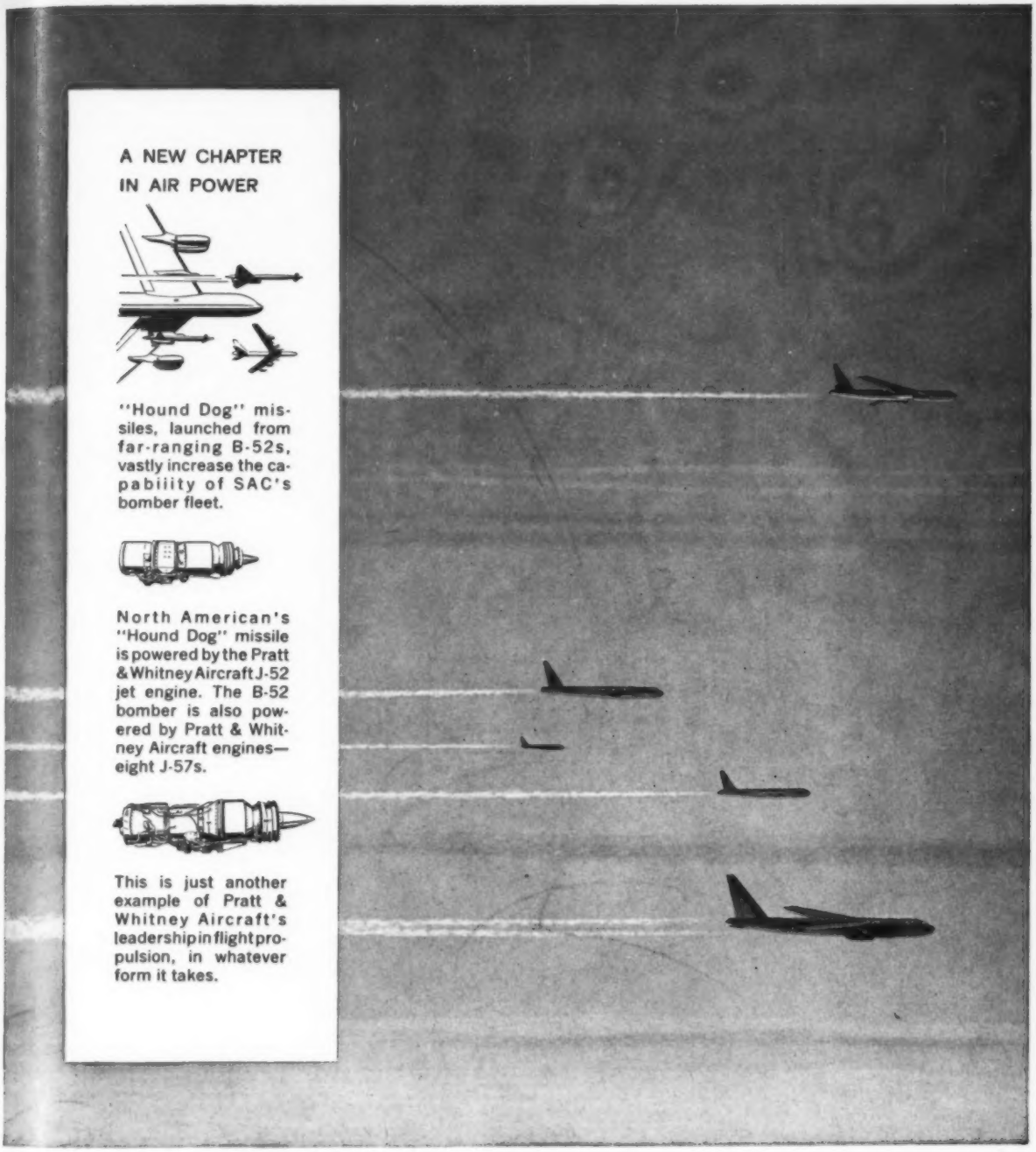
Delta Air Lines took delivery of its first Douglas DC-8. The plane flew from Long Beach, Calif., to Miami, 2,497 miles, in 4 hrs. 43 mins.

Frontier Airlines received CAB approval of a $2,250,000 guaranteed loan to be applied to purchase of five Convair 340s and spares.

FAA has approved tentatively ATA's proposal to evaluate use of average weights for baggage—23.5 lbs. for each piece of checked baggage and 5 lbs. for carry-on items.

A Lockheed JetStar has been purchased by the Canadian Department of Transport. It will be used to evaluate navigational aids at high altitudes and to set up traffic control procedures.

For the record: On August 28, IATA marks its 40th anniversary. On that date in 1919 it was organized as International Air Traffic Assn., was renamed International Air Transport Assn. in 1949.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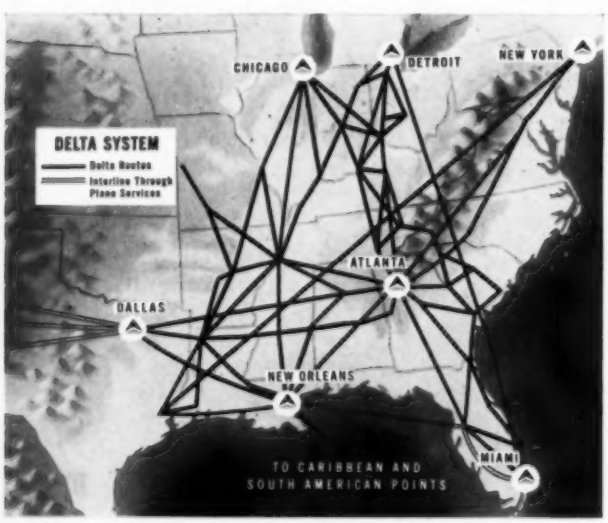

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Braniff's new fleet of Lockheed Electras, now in operation, will be augmented next December, by Boeing 707 jet liners—both using Texaco Aircraft Turbine Fuel.

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Prediction for '75 . . .

A $4-Billion Cargo Market

- **P.O. asks Okay for broad mail authority**
- **Monroney all-cargo aircraft plans ready**
- **1,000 new planes seen in 15 years**

DRAMATIC EVIDENCE that the airlift market is being prepared for unprecedented expansion occurred in July and a major push for all-cargo development continued to gain momentum.

MAIL: Postmaster General Summerfield formally asked Congress on July 16 for legislative authority to dispatch any and all classes of mail on certificated air carriers, whenever such carriage could expedite the mail. At stake are billions of ton-miles and hundreds of millions of dollars in additional revenues to airlines. (See next page for details.)

CARGO: Although the original timing had been somewhat upset, the push was still on to get the long-awaited Air Merchant Marine bill introduced as soon as possible. President Eisenhower is expected to make a public statement calling for expansion and development of an all-cargo industry to provide the nation with adequate airlift capacity. Following the White House push, Senator Mike Monroney (D.-Okla.) will introduce the bill calling for government-guaranteed loans to operators to finance ordering of new all-cargo aircraft. But with this session of Congress approaching its end, there may not be time for passage before adjournment. (See next page for details.)

PREDICTIONS: Adding impetus to the foregoing moves, industry circles were buzzing about an air cargo study privately prepared and issued by a major university research unit which contains predictions about cargo expansion bordering on the startling.

According to one all-cargo carrier which has access to the study, air cargo revenues domestically and U.S. foreign, amounting to only $150 million last year, will reach a whopping $4 billion by 1975. In that year cargo revenues will amount to 50% of total airline revenues, the study says.

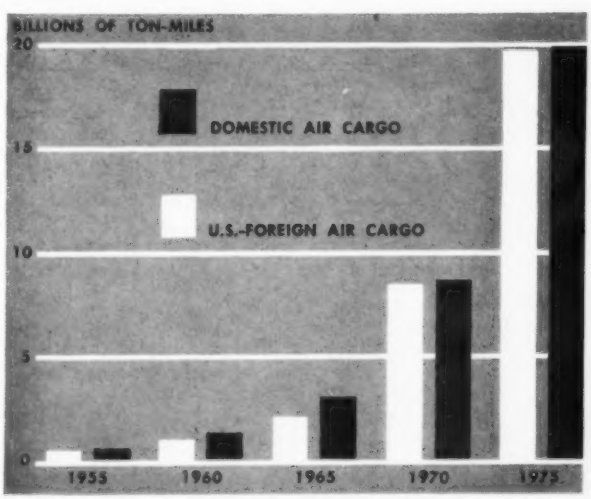
Another highly optimistic prediction in the study, it is reported, says that cargo ton-miles (exclusive of mail but including U.S. foreign) will jump from the less-than-one-billion last year to between 30 and 40 billion ton-miles by 1975, divided equally between domestic and U.S. foreign.

A very substantial five-fold jump to 5 billion ton-miles is forecast by 1965.

The study also is reported to predict that air cargo rates will drop to 10¢ to 12¢ per ton-mile within the next five years, an early drop coming through more competition and use of converted piston equipment, and the additional drop coming through greater use of turbine equipment with operating costs low enough to penetrate the big cargo market available at the 10¢ and 12¢ per ton-mile rate.

But what also has industry buzzing is the prediction in the study that by 1975 1,000 turbine-powered all-cargo airplanes will have been ordered at a cost of at least $6 billion, and that by 1966 there will be between 300 and 400 new and converted planes put into all-cargo service around the world.

Of utmost significance in the air cargo outlook is the leadership taken by FAA Administrator Elwood Quesada in providing government support. Not only is President Eisenhower lending his personal hand and prestige, but the problems of the nation's airlift capacity and potential will be discussed and approved by the Cabinet and other Administration offices. All of the Administration push has been tied in closely with Senator Monroney's legislative program. Political partisanship has been virtually eliminated.



Here is how a university research study just issued projects air cargo volume for the next 15 years. By 1975 total domestic and U.S. foreign will reach 40 billion ton-miles, the study says.

Mail by Air Boom One Step Closer

IN AN ACTION of historical significance to the air transport industry, Postmaster General Arthur Summerfield asked Congress on July 16 to provide legislative authority to enable the Post Office to use certificated air carriers for transportation of all classes of mail. The only qualification: it would have to be in the public interest because of the nature of the terrain or the impracticability or inadequacy of surface transport.

If the authority is granted—and even the potent railroad lobby can't stall it off too long—the long-awaited and inevitable breakthrough in carrying all classes of mail, including parcel post and second class, will have been achieved on behalf of air transport.

Summerfield told Congress that CAB should continue to set rates for such carriage. But he also asked for authority to contract independently with air carriers—except air mail and air parcel post—for carriage of all other classes of mail for two-year periods, with a provision that if CAB finds that the rates are unfair or unreasonable, such contracts shall not be renewed.

Immediate industry reaction to the contract request was not favorable. Airlines desire an agency such as CAB to be an umpire in establishing rates in all of their dealings with the Post Office.

Summerfield's program was referred to the Post Office committees of both houses of Congress. The present session is well along, with not much more than a month to go, but it is possible that some committee action will be forthcoming before adjournment. Technically, the proposal is to amend the Air Star Route Law, the Act of Apr. 15, 1938.

The Post Office head told Congress that the reduction in mail trains (*AIRLIFT*, July) has created a crisis in the dispatching of mail. He gave no figures showing potential amounts that would be placed on airlines, or how much would be transferred from surface to air when authority is granted, but it is known that billions of ton-miles are ultimately involved.

Probably the first to benefit would be local carriers who could take over the job of carrying all classes of mail almost at once, and thereby reduce subsidy requirements.

The only major reservation expressed by this segment of industry concerned the PO's reference to cities more than 300 miles away. In endorsing the bill, Joseph P. Adams, executive director of the Assn. of Local Transport Airlines, stressed that local carriers could economically carry first-class mail at distances shorter than 300 miles and cut subsidy materially.

Big Air Cargo Bill Ready... But

A LAST-MINUTE DELAY upset somewhat the timing for introduction of the long-awaited Air Merchant Marine bill, which will make possible a vast air cargo expansion. But high government officials were confident that the measure will receive favorable Congresisonal action —although perhaps not at this session.

The delay was caused by two government departments, one asking more time to study the plan, the other concerned about the timing.

Officials, while upset by the development, remained as highly optimistic as ever. "The logic of the bill is overwhelming," said one, although he added that chances for passage at this session had been lessened. Hope was that matters could be moved off "dead center" during the first part of August.

The Eisenhower administration will give the bill its official blessing and support. It is expected that the President will make a public statement urging that the commercial cargo capacity be expanded and stating that a big and strong all-cargo industry is an essential to a strong national defense. The bill will be introduced by Sen. Mike Monroney, the Oklahoma Democrat who has been a long and faithful friend of aviation.

Final revising of the Monroney legislative proposal had been completed. While details had not been released, the bill calls for government guaranteed loans of perhaps 75% of the cost of new all-cargo airplanes which were designed to meet government requirements for low operating costs and efficiency. Such loans would be available to certificated air carriers and would be approved by CAB.

Loans would also be available immediately for conversion of piston passenger-carrying equipment (DC-6s, DC-7s and Super-Connies) to all-cargo aircraft, since new airplanes acceptable to receive government financial assistance must be new designs and are four to five years away in all probability.

It is expected that some assurance will be given by the government and the Pentagon that all military services will use commercial air service to a much greater extent. The form which this assurance will be given was not known.

It is understood that the military services have agreed to help promote the all-cargo program and that orders will be forthcoming in due course for all-cargo aircraft which will have no military compromises in design. In other words, the military will buy "off-the-shelf" cargo airplanes designed for best operating and loading efficiency and lowest operating cost.

Turboprop designs will be mostly favored, but there will be opportunities for turbojet cargo aircraft also. Any and all manufacturers will be enabled to compete in the coming race for cargo aircraft sales. No one manufacturer will be selected. All will be eligible whose performance and design characteristics meet government tests of efficiency and cost.

Who Were Best and Worst CAB Members?

L. W. Pogue Voted Tops in AIRLIFT Poll
Ross Rizley Was "Worst" in Industry View
Nyrop, Gurney, Hector and Warner Rate High

HOW DOES THE AIRLINE INDUSTRY evaluate the members and chairmen of the Civil Aeronautics Board since that five-man agency was created in 1938? And which members does industry consider to have been "the worst?"

An *AIRLIFT* survey polled 252 top executives and attorneys among all of the certificated airlines. More than 40%, or 103, responded with marked ballots within the time limit. The voting was secret—no ballots were signed.

Those polled were asked to judge the 23 present and former members as to their contribution to the development of air transportation, their judicial approach, their resistance to political pressures, their hard work and application to their jobs, their background for the jobs, and their realization of the overall importance of air transportation.

Winner by a clear margin as the best member and the best chairman was L. Welch Pogue, Democrat, who served from 1942 to 1946, and is now member of the law firm of Pogue & Neal, Washington, D.C.

If an "All-American" CAB were to be made up from the balloting, the other four members would be Donald Nyrop (1951-52), Democrat, now president of Northwest Airlines; the late Edward P. Warner (1937-45), Republican, who joined the Board in its second year and who later became head of the International Civil Aviation Organization in Montreal; Chan Gurney, Republican, a current member who has served since 1951; and Louis Hector, Democrat, newest member appointed in 1957.

Winning the dubious distinction of "worst" was former Congressman Ross Rizley who served one year (1955-56) and who is now a federal judge in Oklahoma. Rizley was also voted "worst chairman." He had taken the CAB post as a "favor" to the White House to await the judgeship appointment.

Two present members, Harmar Denny, Republican, whose term expires the end of this year, and G. Joseph Minetti, Democrat, ranked very low in the scoring.

The present chairman, James R. Durfee, ranked eighth

AIRLIFT'S ALL AMERICAN CAB ..... AND THE WORST

POGUE

NYROP

WARNER

GURNEY

HECTOR

RIZLEY

Evaluation of CAB Members
(Based on Weighted Votes)

Name	Term	Rank	Weighted Total Rating [1]	Rated [2] 1	2	3	4	5
L. Welch Pogue	(1/15/42-6/18/46)	1	221	24	17	6	6	3
Donald W. Nyrop	(5/18/51-10/31/52)	2	157	12	13	8	7	7
Edward P. Warner	(8/22/39-9/20/45)	3	125	14	5	6	4	9
Chan Gurney	(3/12/51-12/31/64)	4	103	4	9	9	4	12
Louis J. Hector	(4/4/57-12/31/62)	5	97	5	4	6	16	6
George P. Baker	(8/14/40-9/1/42)	6	87	5	8	4	7	4
James M. Landis	(6/19/46-12/31/47)	7	73	4	4	6	8	3
James R. Durfee	(4/13/56-12/31/60)	8	72	4	5	4	9	2
Joseph J. O'Connell, Jr.	(4/6/48-7/7/50)	9	69	2	5	10	2	5
Oswald Ryan	(8/14/40-12/31/54)	10	61	2	3	5	8	8
Harllee Branch	(8/22/38-4/30/48)	11	55	3	3	5	3	7
Josh Lee	(2/8/43-12/31/55)	12	53	4	3	3	4	4
Joseph P. Adams	(2/6/51-12/31/56)	13	51	4	1	5	4	4
Russell B. Adams	(5/13/48-12/31/50)	14	51	1	4	6	4	4
Delos W. Rentzel	(10/4/50-5/6/51)	15	44	2	4	3	4	1
Edward J. Noble	(8/22/38-4/12/39)	16	32	2	4	1	1	1
Harold A. Jones	(3/29/48-2/28/51)	17	28	1	1	3	3	4
Robert H. Hinckley	(8/8/38-7/8/40)	18	22	1	1	3	1	2
Ross Rizley	(3/1/55-4/15/56)	19	13	2	0	0	1	1
G. Joseph Minetti	(6/11/56-12/31/61)	20	9	0	1	1	0	2
Clarence M. Young	(2/21/46-10/14/47)	21	5	0	0	1	0	2
Harmar D. Denny	(4/7/53-12/31/59)	22	5	0	0	0	0	5
George G. Mason, Jr.	(8/8/38-12/31/41)	23	1	0	0	0	0	1

[1] Rank based on weighted total votes. To get weighted total: (i.e. one first place rating is equal to 5 fifth place ratings)
First place votes = 5
Second place votes = 4
Third place votes = 3
Fourth place votes = 2
Fifth place votes = 1

[2] Figures show the number of respondents who rated person as best CAB member (1), second best (2), etc.

Worst CAB Member

Name	Rank	Number of Votes Received
R. Rizley	1	18
J. P. Adams	2	15
H. Denny	3	15
G. Minetti	4	13
Josh Lee	5	12
H. Jones	6	10
O. Ryan	7	9
D. Rentzel	8	7
D. Nyrop	9	5
C. Gurney	10	4
J. Durfee	11	3
E. Noble	12	3
J. Landis	13	3
H. Branch	14	2
J. O'Connell	15	2
C. Young	16	2
G. Mason	17	1
L. Hector	18	1
G. Baker	19	1
R. B. Adams	20	0
R. Hinckley	21	0
L. Pogue	22	0
E. Warner	23	0

in the complete tabulation, and fifth as chairman.

One interesting result was the relatively high scoring of three of the early five members named two decades ago when the CAB was created. In addition to the late Edward Warner, both Harllee Branch, now retired in Atlanta, Ga., and Oswald Ryan, retired in Washington, rated quite high considering that neither man was well known or known at all by executives who have come into the industry in recent years. This latter group includes quite a few local carrier executives.

Mr. Ryan, who served as an interim chairman some years ago, was inadvertently left off the ballot for the best chairman. Judging from his ranking in the main poll, he would have placed about midway in the group of twelve.

Two of the 23 members are deceased. In addition to Mr. Warner, Edward J. Noble, the first chairman, died last year. Several others have retired. Several are with industry, while some others are in the practice of law.

Political affiliations seem to have carried little weight in the expression of preferences. And when it came to "worst," only four members received no votes at all: Messrs. Russell B. Adams, Robert Hinckley, L. Welch Pogue, and Edward P. Warner.

As evidence that a member can be highly controversial, a few individuals ran strong in the main balloting but also accumulated quite a few "worst" votes. In some instances, at least, this could be attributed to local carriers and trunk carriers voting differently.

Sweepstakes winner Pogue began his term in the midst of World War II. In one way he did not have many of the heavy problems faced by present-day members. But on the other hand he paved the way for the first international route patterns and the local carrier systems and faced decisions which were as tough to make as any the Board faces today. It seems apparent from the balloting that he made a deep impression on the industry as a man of integrity, ability and foresight.

Among the top chairmen

The only two Board chairmen who ranked high in the rating of chairmen but who did not make the all-time "All American" CAB were J. O'Connell and James R. Durfee. As chairman, O'Connell rated 4th, Durfee 5th.

O'Connell

Durfee

Evaluation of CAB Chairman
(Based on Weighted Total)

Name	Rank	Weighted Total 1/	Rated 2/				
			1	2	3	4	5
L. Pogue	1	260	28	17	9	9	7
D. Nyrop	2	210	18	13	15	7	9
C. Gurney	3	147	9	15	9	4	7
J. O'Connell	4	112	11	5	6	7	5
J. Durfee	5	108	8	11	2	6	6
J. Landis	6	89	5	6	7	7	5
H. Branch	7	82	5	4	9	4	6
D. Rentzel	8	63	5	1	5	7	5
E. Noble	9	56	5	2	4	5	1
R. Hinckley	10	44	1	3	4	5	5
R. Rixley	11	23	2	0	1	3	4

1/ Rank based on weighted total votes. To get weighted total:
First place votes = 5
Second place votes = 4
Third place votes = 3
Fourth place votes = 2
Fifth place votes = 1
(i.e. one first place rating is equal to 5 fifth place ratings)

2/ Figures show the number of respondents who rated person as best (1), second best (2), etc.

Exclusive Technical Report

First Cost Curves o

BY BILL COMBS

AFTER ONE OF THE LONGEST and most diversified "paper" design exercises in the history of air transport marketing, Douglas Aircraft Co. has pinned down the form and figures of the DC-9.

At the same time, the Santa Monica plane builder signaled start of production for the four-jet, short-to-medium range "DC-6B replacement" as soon as a substantial number of buyer commitments are received. The DC-9 sell program now being directed at the airlines is aimed at 75 to 100 aircraft needed to start production at Douglas-Long Beach.

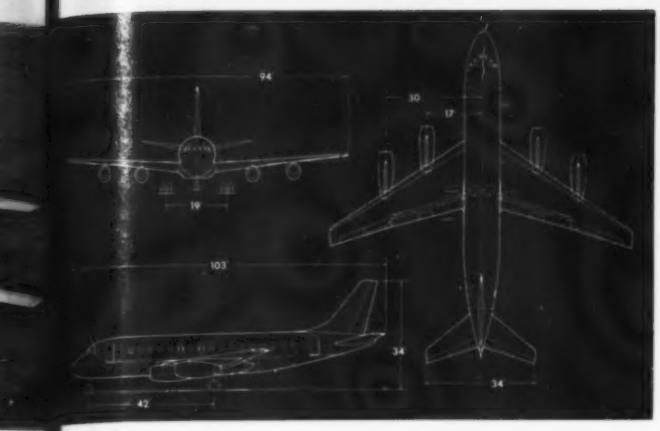
First cost curves on the new Douglas jet forecast a direct operating cost of $1.59 per nautical mile based on a design cruising speed of 478 knots at 35,000 ft. over a 300 n.mi. segment. Block speed would be 335 knots. For 1,000 n.m. range, block speed goes to 425 kts. and direct cost drops to $1.24 per n.m. Minimum point is at 2,000 n.m. range with a block speed of 449 kts. and operating cost of $1.17.

These figures are based on the 1955 ATA cost formula for the 68-passenger first class version. Broken down, the figures come to $16 per engine hr. for maintenance, and 14.5¢ per gal. for fuel. Utilization is assumed to be 750 hrs. per day with 10 years airframe and seven years radio and spares depreciation.

The $3 million plus price tag on the airplane is being held down somewhat by the extensive use of interchangeable DC-8 tooling. Douglas says much of the DC-8 flight test data is applicable to the DC-9, and there is a close parallel of engineering concepts.

An example of DC-8 design thinking in the DC-9 is the wing. The 30 deg. sweep of the DC-8 wing is carried over despite the fact that one of American Airlines' reasons for choosing the 707 was its added 5 deg. sweep angle. Although the DC-9 uses the same series airfoil as the DC-8, modifications have been made at the outer panels and root sections which bring the force-divergence Mach number—that speed at which part of the flow over the wing becomes supersonic and creates a large drag rise—up to the cruise speed of Mach 0.84.

In this manner, Douglas says it has obtained the high-



o Douglas DC-9

speed advantages of a thinner, more highly swept wing while retaining the low speed characteristics of the straighter wing.

The DC-9 wing features nearly every trick in the book for low-speed manuvering, however. Double-slotted flaps with 28% chord are mounted on special four-bar linkage with hydraulic control. The flap extends into the region of the jet blast and has a slight upturn behind the inboard nacelle to clear the blast at flap settings above 25 deg.

The wing also has full-span 15% chord leading-edge slats which are hydraulically driven.

Three flap-like spoilers are positioned ahead of the flaps and are extended during the landing roll to help destroy wing lift. The two outboard segments operate in conjunction with the ailerons after the landing gear is lowered.

Control systems are fairly conventional and similar to the DC-8. A tab-boost is provided as a manual back-up in case of failure in the hydraulic booster system.

The Pratt & Whitney JTF10A-1 turbofan engines, rated at 8,250 lbs. thrust (see *AIRLIFT*, July, p. 35) will be equipped with Douglas-designed thrust reversers. The thrust brakes will be used in the air as well as during landing and will be capable of up to 40% reversal of the gross forward thrust. Reversers are actuated by high-pressure engine bleed air and each one is independent of the other three.

Maximum takeoff weight of the DC-9 will be 120,000 lbs. for range of 2,005 n.m. and a space-limited first class payload of 17,130 lbs. With a payload of 14,500 lbs., range can be extended to 2,260 n.m. At this weight, FAA takeoff distance required is 6,030 ft. on a sea-level standard day. The residual range—the ability to take off on additional route segments without refueling—is 737 statute mi.

Cabin pressure will hold the DC-9 at sea level to an altitude of 23,000 ft. with a differential of 8.77 psi. At 40,000 ft., cabin altitude reaches to 6,700 ft.

Hydraulic system in the DC-9 will be a 3,000 psi constant pressure type using fire resistance Skydrol fluid. An independent 3,000 psi system controls the lateral-control spoilers. It is powered by a variable displacement electric pump.

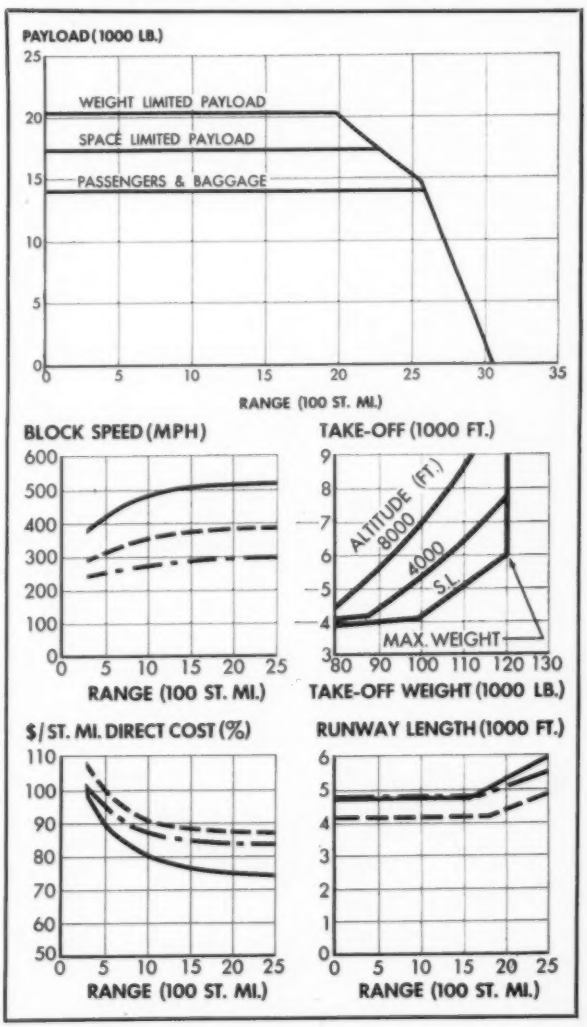
The electric system is 115/200 volts, three-phase, four-wire, 400 cps, constant frequency with four engine driven constant speed drives.

DC-9 air conditioning will draw fresh air from two turbo-compressors which provide equal sources to the cabin. The compressors also eliminate the need for fuel-fired or electric cabin heaters since the system can use the heat of compression.

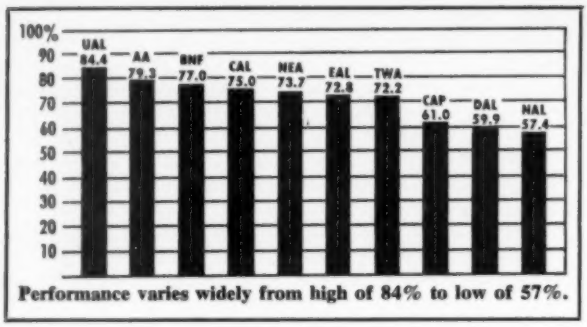
The DC-9 has two passenger doors, one forward and one aft on the left side. The forward door has a folding stairway. The cargo hold is 47 in. deep and has a total volume of 609 cu. ft. It is served through two doors, one measuring 36 by 43 in., and the other 43 by 53 in.

Douglas says the DC-9 design minimizes break-even requirements. For stage lengths between 500 n.m. and 1,000 n.m., the break-even first class factors are 66% and 48.5%, respectively. This compares to 68% and 56.5% for the same runs in the DC-8.

Optimistic as it may appear, Douglas says that, given enough orders, it could put the DC-9 in service by 1963. Right now the push is to get a sales jump on the still-uncertain Boeing 727.



Curves for 68-passenger DC-9 show payload/range and take-off distance. Comparison charts show DC-9 (solid line) along with DC-6B (broken line), and a turboprop (dash line), presumably the Lockheed Electra. All charts are based on Douglas calculations, based on 1955 ATA formula.



Performance varies widely from high of 84% to low of 57%.

Who's On Time? Here's How Carriers Rank

United tops the industry in first reports filed with CAB. Jet record is not good.

UNITED AIR LINES took off with top honors on July 15 as some 10 trunks and 11 locals met that CAB deadline for first reports of schedule reliability. The period in question: May 1959.

A close runner-up to UAL's 84.4% of flights "on time" within 15 minutes was American at 79.3%. Braniff ranked third at 77%. On the low end of the scale were National at 57.4%, Delta at 59.9% and Capital at 61%.

But overshadowing the relative rankings of the carriers was the performance of the jets. National's 707 was on time only 14.2% for eight trips operated in May. AA's 707 hit 34.4% and TWA's big jet only 43.1% using the 15 minute cushion.

By way of contrast, Lockheed's Electra showed up extremely well. American's Electra flights were 85% on time, Eastern's 73% and National's 56.6%.

All local carriers report a high degree of reliability ranging from Ozark's top of 86.1% to North Central's 66.1% of flights on time within 15 minutes.

This is the first time in airline history that reports of "on time" reliability have been filed and these first statistics, no doubt, will prove as controversial as the rule-making itself.

For example, in establishing 15 minutes as the yardstick, the rankings of the trunks change from what they would be if five minutes were used. American had 63.7% on time within five minutes, United 63.4%. Likewise, Continental would have outranked Braniff for third place by 0.1% if it had not been for Braniff's superior performance in the six-to-fifteen minute late category.

In the jet operations, the bulk of operations fall in the 16 minutes late and over department. For American, 65.6% of flights fell in this area, for TWA 56.9% and for National (although the figures represent only 28 flights) 85.8% were 16 or more minutes late. The relatively good showing of TWA in 707 operations is explained, not by its record in the 0-to-5 minute late department, but in holding a good share of its tardiness (27.5% of flights) in the 6-to-15 minute area.

Further controversy no doubt will be generated by the first reports as to the basic ground rules for reporting. Here one of the key topics to be raised is the CAB's characteristic inconsistency in requiring airlines to report not the block-to-block performance, but instead, the arrivals at terminal stations.

The basis for the new reports is CAB's controversial Economic Regulation No. 234 requiring airlines to publish "realistic" schedules and defining them as those completed at least 75% of the time within 15 min. of the block-to-block time shown on the timetable.

The reports filed with CAB are limited to one-and-two-stop trips only on the theory that these are most susceptible to competitive impact and are most significant in promoting realistic schedules.

AIRLIFT's immediate analysis of the initial reports indicates that all carriers experience delays on certain flights, particularly those operating from congested terminals at peak hours. The key offenders: New York, Washington, Chicago, Atlanta and Los Angeles.

But the airline attempting to allow for such delays in flight scheduling has little to choose from in the form of alternatives. If schedules are changed, the carrier is at the mercy of competitors who might decline to make a similar change. If all carriers adjust for the same situation, the "peak" simply changes its hour.

On the other side of the ledger, the controversial Board rule takes over. It admonishes carriers *not* to file schedules so slow as to constitute inadequate service or uneconomical or inefficient management.

Watch future editions of *AIRLIFT* for current coverage of the controversy that will continue as the airlines, their pilots, CAB, the FAA and airports pursue their apparently conflicting interests in the reliability of schedules.

——ON TIME PERFORMANCE—MAY 1959——

On-time Dependability of Trips at Termination as Reported to CAB

	On time to 5 min. late	6-15 min. late	16-30 min. late	Over 30 min. late	Total trips reported
TRUNKS					
American	63.7%	15.6%	9.9%	10.8%	5,052
Braniff	55.6	21.4	12.3	12.4	1,673
Capital	35.9	25.1	19.7	19.4	4,774
Continental	55.7	19.3	14.4	10.6	912
Delta	34.3	25.6	23.4	16.8	1,712
Eastern	48.8	24.0	16.0	11.7	5,640
National	35.3	22.1	17.7	25.0	843
Northeast	52.4	21.3	12.5	13.9	2,781
Northwest	NA	NA	NA	NA	NA
TWA	51.5	20.7	12.0	12.1	2,789
United	63.4	21.0	9.1	6.5	3,936
Western	NA	NA	NA	NA	NA

NA—Not available. Carriers failed to report by deadline.

LOCALS					
Allegheny	58.4%	20.8%	8.1%	10.4%	173
Bonanza	73.8%	9.2	9.5	7.7	338
Central	51.7	16.7	15.0	16.7	60
Frontier	55.9	13.6	14.4	16.1	229
Lake Central	60.0	24.6	10.1	5.1	138
North Central	35.9	30.2	17.8	16.2	1,436
Mohawk	42.5	27.2	16.7	13.6	1,195
Ozark	52.7	33.1	11.8	2.4	659
Pacific	53.8	25.4	8.0	12.8	212
Southern	41.1	28.8	18.7	11.3	416
West Coast	71.5	9.7	15.1	3.8	186

Local airlines not shown failed to report by deadline.

JETS AND TURBOPROPS					
American-Electra	68.0%	17.0%	7.5%	7.5	333
707	17.2	17.2	25.8	39.8	160
Eastern Electra	52.2	20.8	14.6	12.4	1,056
National Electra	28.3	28.3	20.0	23.4	60
707	7.1	7.1	42.9	42.9	28
TWA 707	15.6	27.5	31.1	25.8	244

Anyone Want the 'Economy' Transport?

By PETER G. MASEFIELD

Nobody has ever asked an aircraft builder for the "most economical." Why not? With jets in service, air transport's honeymoon is over.

IN THE SOPHISTICATED circles of Air Transport's "crystal-ballsmanship"—where jets are accepted as this year's everyday, but last year's thinking—much of today's talk is of supersonic transport aircraft and of whether they shall fly at Mach 2, Mach 3 or faster still.

In these high-falutin' places, discussion turns on how passengers shall be kept cool and comfortable, surrounded as they will be by the equivalent of vats of boiling oil; of the necessary flight planning so that the trail of supersonic "booms" will cause the minimum of earthly disturbance; and of how the time schedules can be adjusted, when a regular feature of westward flying will be arrivals some clock-time before the start.

But nowhere—or, at least, hardly anywhere—is there talk of the economics of the case—who shall pay and "what the market will bear." However much the B-58 and B-70 bombers in the United States (and such European types as the forthcoming all-steel Bristol and the French Griffon) may contribute to the general know-how, the development of a supersonic transport to fly commercially faster than the fastest fighter of today is bound to be costly. The economics of the supersonic airplane will bear a direct relation to the amount of cost which has to be written off against commercial production.

Die is cast for supersonics

Be that as it may, the die is cast for the supersonic commercial transport. No one can now doubt that such aircraft will be in service before the end of the next decade—Los Angeles will be two hours from New York, and both London and Paris no more than three hours. We have to recognize that these things are upon us and that such advances will profoundly influence our future course.

I believe they will certainly bring us to the "Great Divide" where—in the one direction we shall see speeds climbing relentlessly upwards, inevitably associated with higher operational costs while, in the other, if we set our minds to the task, by pegging speeds at today's levels we shall be able to bring about a dramatic reduction in the fares.

The fact is that, with the establishment of the jets in regular commercial service on the world's air routes, the honeymoon period for air transport is over. And we have now come to the serious business of housekeeping on a budget and of earning a day-to-day living while paying our way. These chores will be helped greatly, during the next period of subsonic flying, by the substantial improvement in specific consumption, in takeoff thrust—and incidentally in noise level—which will be provided by the ducted-fan evolution of today's jet engines.

The fan-jet may well, in fact, "save the bacon" economically of the present jet aircraft. But they are not likely to be able to make any major contribution to those reductions in operational costs which are so essential if we are to see fares and charges reduced substantially, so that air transport can be made available to many more people.

Up to now the aircraft manufacturing industries, on both sides of the Atlantic, have never been asked specifically to produce, for airline service, the most economic airplane which the state of the art can provide. The emphasis has always been on increases in speed.

Sometimes, as with the DC-3 and the DC-6B, the Viscount and the Britannia, uplifts in speed have been accompanied also by reductions in specific costs. But by and large, although over the years we have gained some 500% increase in cruising speed, our advancements in specific costs have come almost entirely from the results of increase in scale of the aircraft rather than from basic improvements in operating economics. And so, while we look forward into the next era of supersonic transport we have, I am sure, also to look forward seriously—and—almost for the first time—into the parallel evolution of reducing costs—two revolutions to be brought about at the same time. The "Great Divide."

In the generation to come we have at our disposal knowledge of advanced techniques in structures, in aerodynamics, in engine thermodynamics, in materials and in aircraft systems. These skills and techniques can be put, on the one hand, to produce aircraft capable of flying commercially at 2,300 mph, and on the other hand to flying at, perhaps, 500 mph, at half today's costs.

If we can gain from the airlines—our customers—a recognition of the need for these two parallel lines of progress—of lower costs alongside supersonic speeds—we in the aircraft and aero-engine manufacturing industries can, I believe, employ the most advanced techniques so that in the future those airlines can offer to the travelling public the choice of moving between New York and Los Angeles, or New York and London at speeds which will beat the sun at premium fares or—at sub-sonic speeds—at fares and freight charges which may be below even the lowest cost of surface transport.

I emphasize again, however, that we have never yet been asked by the airlines to do this. I hope that we shall be. And I believe that we shall.

It is a new challenge to both the operating and the manufacturing industries—a challenge we must recognize and a challenge we must accept.

About the author

Peter G. Masefield is managing director of Bristol Aircraft, Ltd., and president of the Royal Aeronautical Society. Entering aviation as a design engineer with Fairey Aviation in 1935, he has served as correspondent, government air transport adviser, air attache to the U.S. and head of British European Airways.

Reds Beat West to Airline Pooling

Six Pool, Iron Curtain combine headquartered in Budapest has been in existence since 1952, may be headed for major reshuffling soon.

By JEAN-MARIE RICHE

Recently AIRLIFT's Paris editor had the privilege to participate in the inaugural flight of Air France between Paris and Warsaw via Prague. During his five days stay in Poland, our Paris editor met the leaders of Polish civil and commercial aviation, found that their worries are not much different from those of airlines outside the Iron Curtain. Here are some of his impressions.

WARSAW, POLAND—Western European airlines may have their Air Union (*AIRLIFT*, July), but six Iron Curtain countries have been operating a pooling organization for several years.

Its name: Six Pool. Its members: CSA (Czechoslovakia), Deutsche Lufthansa (East Germany), LOT (Poland), MALEV (Hungary), TABSO (Bulgaria), TAROM (Rumania). Air Union, now being organized, consists of Air France, Alitalia, Lufthansa and Sabena.

(Pooling itself isn't new. Two-company pools have existed for years. What's different about Six Pool and now Air Union are the multiple-operator and multiple-country approaches they entail.)

Six Pool, run by a permanent office in Budapest, came into existence in 1952 as a means of helping the members develop their short and medium-haul route systems and make money on them. The participants meet twice a year in lengthy sessions to modify and update the operation. For example, LOT had its share of the Warsaw-Budapest route doubled after it convinced the last meeting of the pool that it had been working vigorously to build up traffic on this segment.

However, many problems are created because LOT, CSA and East Lufthansa are considerably larger operations than those of the other three. This will lead to major changes—a cooperation even closer than the Six Pool between LOT and CSA, probably extending later to include East Lufthansa.

This LOT-CSA operational cooperation already has a precedent in the air traffic control field. Until introduction of commercial turbine aircraft, the separation between civil and military traffic was rather simple. Commercial planes flew at altitudes not exceeding 10,000 ft. and military jets operated above that level.

However, when civil turbines appeared on the scene, Poland and Czechoslovakia adopted a new system under which airports and air routes have ceased to be under the responsibility of the airlines and are operated by a separate administration, controlling the airspace of the two countries and insuring close coordination of civil and military traffic. In other words, it is similar to Eurocontrol, which is being organized in Western Europe.

Somewhat unique among the Iron Curtain airlines is LOT. It is thinking in terms of Western planes for its shorter routes, and furthermore will be authorized to buy.

Surprisingly enough, although the economy of the country is directed by the rules of socialism, "business" seems to mean about as much in Poland as it does in the U.S. or France. Augustyn Wojnowski, LOT's vice president-sales, told *AIRLIFT*: "We cannot afford to run prestige routes nor to fly prestige planes. For us, it is a must to balance our expenses by our revenues." He stated this with more conviction than is found at the top of some airlines on the other side of the Curtain.

Carrying out this principle, LOT has been putting increasing emphasis on development of international traffic, paid for in those foreign currencies which Poland needs so badly. In 1952, LOT's international traffic amounted to only 6% of its total business. By 1957, the figure had risen to 18% and jumped to 30% last year. It will be even higher this year. Passengers from abroad have a priority on LOT's domestic services.

In 1958, 87,117 passengers were carried domestically, and 40,000 were transported on the international network which connects Warsaw with Athens, Belgrade, Berlin, Brussels, Budapest, Bucharest, Copenhagen, London, Moscow, Paris, Prague, Sofia, Tirana, Vienna, Vilno and Zurich.

Tourism is big goal

At present, the many Polish-born people in Western Europe constitute a big source of traffic, and the number of Polish-Americans transported is increasing. LOT's big aim now is to develop tourist traffic between Poland and the rest of the world. Provided the rate of the zloty is readapted to the real value of this currency, Poland will have a lot to offer to tourists.

To serve a network that covers about 8,000 miles, LOT has four Convairs (two purchased from Sabena, one from KLM, one from Iranair). As second-line equipment, it uses a dozen Russian Il-12/14s. The Russian-built DC-3/Il-2s are gradually being retired. To improve its financial position, the airline has turned over to the aero clubs all light planes for which it was formerly responsible.

LOT's management knows that more modern equipment will have to be obtained to meet the competition from both the East and West. It needs a turbine aircraft carrying about 50 passengers and with a range of about 200 miles more than the Fokker Friendship.

Part of the equipment problem may be solved through the forthcoming cooperation with CSA. The Czech carrier has three Tupolev 104-A twin-engined jets and at the end of this year it will receive five Il-18 Moskva turboprops from Russia. These aircraft are too big for domestic routes, and to fill this need LOT will turn to the West.

LOT has by no means abandoned the idea of flying longer routes—such as the North Atlantic, where LOT and CSA together may in three or four years find enough potential to start a service. Not long ago, W. Krysiek, sales promotion manager, visited the U.S. to investigate the tourist market. His conclusions were quite positive about the future outlook for Polish intercontinental traffic.

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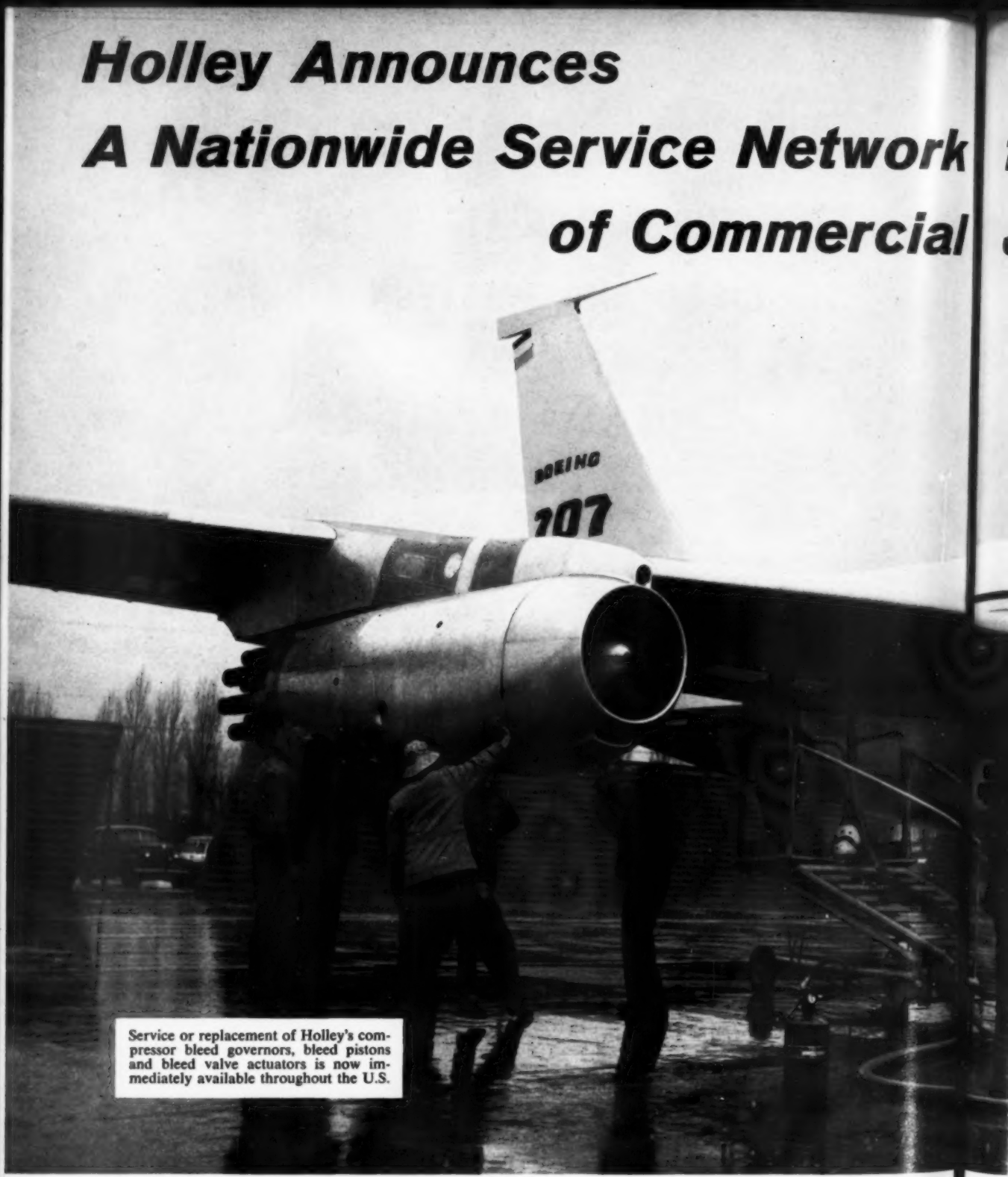

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- **New Management Program Almost Completed**
- **Thomas Completes First Year as President**
- **Jets Set Records and Finances Improve**

TWA's Fast One-Year Come-back

By WAYNE W. PARRISH

THERE'S A NEW LOOK at Trans World Airlines these days. A transformation has occurred in just one year.

After many ups and downs through the years, with more downs than ups, everything is on a long upgrade now. Three things have happened. The TWA performance record set by its new 707s is without parallel in airline history. Owner Howard Hughes is making real progress in getting out of the financial bind in which he found himself last year with his $320 million commitment for new equipment. And TWA has now had a full year under the presidency of Charles Sparks Thomas.

It is the Thomas development that is perhaps most absorbing of all. The 62-year-old former Secretary of the Navy has instituted one of the most drastic reorganizations ever undertaken by any carrier. It is the kind of setup which will be closely watched and studied by major airlines everywhere.

It took awhile for Howard Hughes to talk Mr. Thomas into taking what admittedly was a truly tough job. Employee morale was low. There had been no president for six months. Just about everything was wrong that could be. But Thomas changed his plans for taking life easier and plunged in a year ago. Nobody envied him.

Reorganizing and revising companies was not new to Charles Thomas. Only the airline part was new, and he wasted no time finding out what made an airline tick. As a result, probably no airline has ever gotten such close scrutiny from a management standpoint, and no major company has ever made so many changes to modernize itself (after a 12-year lag) in line with today's realities and future needs.

What Thomas found last July was what all airlines have experienced, except that TWA hadn't done any modernizing in a long time. He found five virtually autonomous divisions. He found thirteen officials reporting to the president and 275 others reporting to the thirteen. He found a minimum of coordination and very little appreciation for costs.

After one year the major part of the reorganization has been completed and while many parts of it are similar to those of some other airlines, Thomas likes to think that TWA now has the best of all systems, a sort of "latest model" to meet current and future needs.

Very prominent in the picture is Cresap, McCormick and Paget, the management consulting firm which Thomas has known for many years and which, by coincidence, had been making studies for TWA for the past few years. Only trouble was, the reports weren't getting action. One of the most recent reports hadn't even been reproduced. Thomas got the firm busy again and just lately he appointed one of the firm's best men, Thomas F. Huntington, as his own executive assistant. It should be noted that Huntington is the first man brought in from the outside by Thomas.

There are some key points to the new TWA setup which should be of wide interest in the industry.

The first is the separation of corporate planning and policy making (called staff functions), from the day-to-day operation of the airline (line functions). This removes from the daily problems the people who should be devoting all of their time and energies toward over-all company problems, especially for the future.

By naming a system general manager to direct all day-to-day operations, the president is thus removed from the hectic daily picture but has the company's best all-round man to run the show and report direct to him. (In this case it is E. O. Cocke, 30-year veteran of TWA, who is senior v. p. and system general manager. Cocke is one of the most knowledgeable and savvy men in the airline industry.)

On the policy and planning side, Thomas now has about seven departments reporting direct to him, instead of thirteen that used to report to the top office.

But this separation of policy and planning from daily line operations was only the first step.

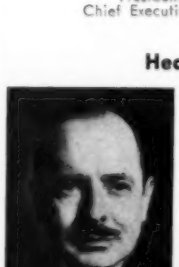
The line functions, in turn, have been broken down into several major areas. One area separates the functions of

The New Lineup

Charles S. Thomas
President and Chief Executive Officer

E. O. Cocke
Senior Vice President System Gen. Manager

Heading Line Functions



Floyd D. Hall, V.P.
General Manager Transportation

Louis P. Marachel, V.P.
General Manager Sales Division

Raymond M. Dunn, V.P.
General Manager Technical Services

production and sales. To handle production Thomas set up a transportation division which handles all of the operations, passenger service, stations, and the like. The sales division is self-explanatory, but it is also all-inclusive under a clearly-defined management setup.

Also reporting to the general manager is Technical Services, headed by Ray M. Dunn, vice president. Under Dunn comes all purchasing, maintenance, communications, engineering, flight test, and ground facilities.

Thomas has added two major management controls which TWA never had before. One is a very heavy new emphasis on scheduling. This concept isn't fully implemented yet, but scheduling will get more prominence and attention in TWA than it probably has in any other airline. Thomas has been convinced that the importance of scheduling has been sadly neglected by the industry, and especially TWA. The department will not only be full-time, but will be representative of all line functions.

Strong research and planning

Another big move is a full-scale planning and research department under Robert W. Rummel, v. p. Although TWA has had research activities, these were wholly inadequate in Thomas's view. This department will be one of the strongest in TWA.

Also of much significance is the manner in which TWA is strengthening and streamlining at the regional and local levels. Passenger and flight operations are being consolidated at the regional level, and below, to centralize authority and responsibility and provide for more experienced and trained personnel in the field.

This is only a sketchy idea of the extent of what is, actually, the most thoroughgoing reorganization and realignment any major carrier has ever had. If it doesn't work out 100% as planned, at least it is a big step toward a workable organization on a truly functional basis.

It has involved, as might be expected, a very great many shifts of personnel and titles. Some may not be happy about their fate, and some are outright unhappy, but the overall feeling seems to be one of intense enthusiasm. TWA's vastly improved financial record this year has helped to give TWA a charge it hasn't had in many years, and this probably accounts for some of the uplift as far as reorganization goes. There have been, and will be, many transfers in the sales field. But good people are being given a chance to step up. Had the management structure kept pace with the times instead of staying static for twelve years, the shuffling wouldn't have been so drastic.

How is Thomas faring himself? Fine. For a solid year he didn't have a day off. He admits some of the changes were tough to make. But Thomas commands respect and is getting a thrill out of his job. In conferences he is calm, collected, but firm. He doesn't shout or pound the table. He cuts through problems to the guts and doesn't like an organization chart with fuzzy fringes or based on personalities. He is a great believer in training and putting people in jobs where they can perform best.

One of the first things he did before tackling organization charts was to set up a series of task forces on costs. He gave some younger people a chance to see what they could do. In a few months last winter they produced new miracles and most of the recommendations were put into effect immediately. TWA's improved position reflects many of these savings.

Thomas can feel well satisfied about the first year. So should Howard Hughes. So should all TWA people. Think back to June, 1958, just before Thomas joined the company and the transformation has been quite remarkable. And you won't find a TWA person anywhere who doesn't think the upward swing is going to continue, whether or not he has the job he thinks he should have.

TWA's New Plan and How It Works

The key is the separation of corporate planning and policy making (staff functions) from the day-to-day operating of the airline (line functions).

Since the entire plan is not yet fully implemented and a few additions are yet to come, an organization chart is not yet available. The broad basic plan, however, is outlined below, although not in official form. And on top of the company setup is, of course, the board of directors of which Warren Lee Pierson is chairman.

Chief Executive Officer

President: Charles S. Thomas
Executive Assistant: Thomas F. Huntington

Advisory Council

Composed of most of the officers with meetings at least monthly, to advise the president and to disseminate policy to company. This is not a policy or decision-making body.

Staff Functions

(Corporate Planning and Policy Making)
(New York City)

Planning & Research: Robert W. Rummel, V. P.
Equipment Planning & Development: Russell K. Rourke, Ass't V. P.
Schedule Planning & Marketing Research: Henry D. Fellows, Ass't V. P.
Finance and Treasurer: A. V. Leslie, V. P.
Equipment Retirement: Frank E. Busch, V. P.
Washington Affairs: Thomas K. Taylor, V. P.
Public Relations: Gordon Gilmore, V. P.
Personnel & Industrial Relations
Legal and Corporate Secretary

Line Functions

(Day-to-Day Operations)
System General Manager: E. O. Cocke, Sr. V. P.
Exec. Ass't: E. Paul Burke, Ass't V. P.

Transportation Division

(Kansas City)

General Manager: Floyd D. Hall, V. P.
Flight Operations: Robert D. Mueller, Ass't V. P.
Passenger Service: J. T. Greenwald, Ass't V. P.
Mgr., International Region: W. L. Trimble (Paris)
Mgr., Atlantic Region: J. E. Frankum
Mgr., Central Region: John Harrington
Mgr., Western Region: V. J. Stott
Dir., Industry Technical Affairs: R. F. Brown
Dir., Transportation Training: Capt. R. E. Rowe
Dir., Planning and Control: E. W. Jacobsen

Sales Division

(New York)

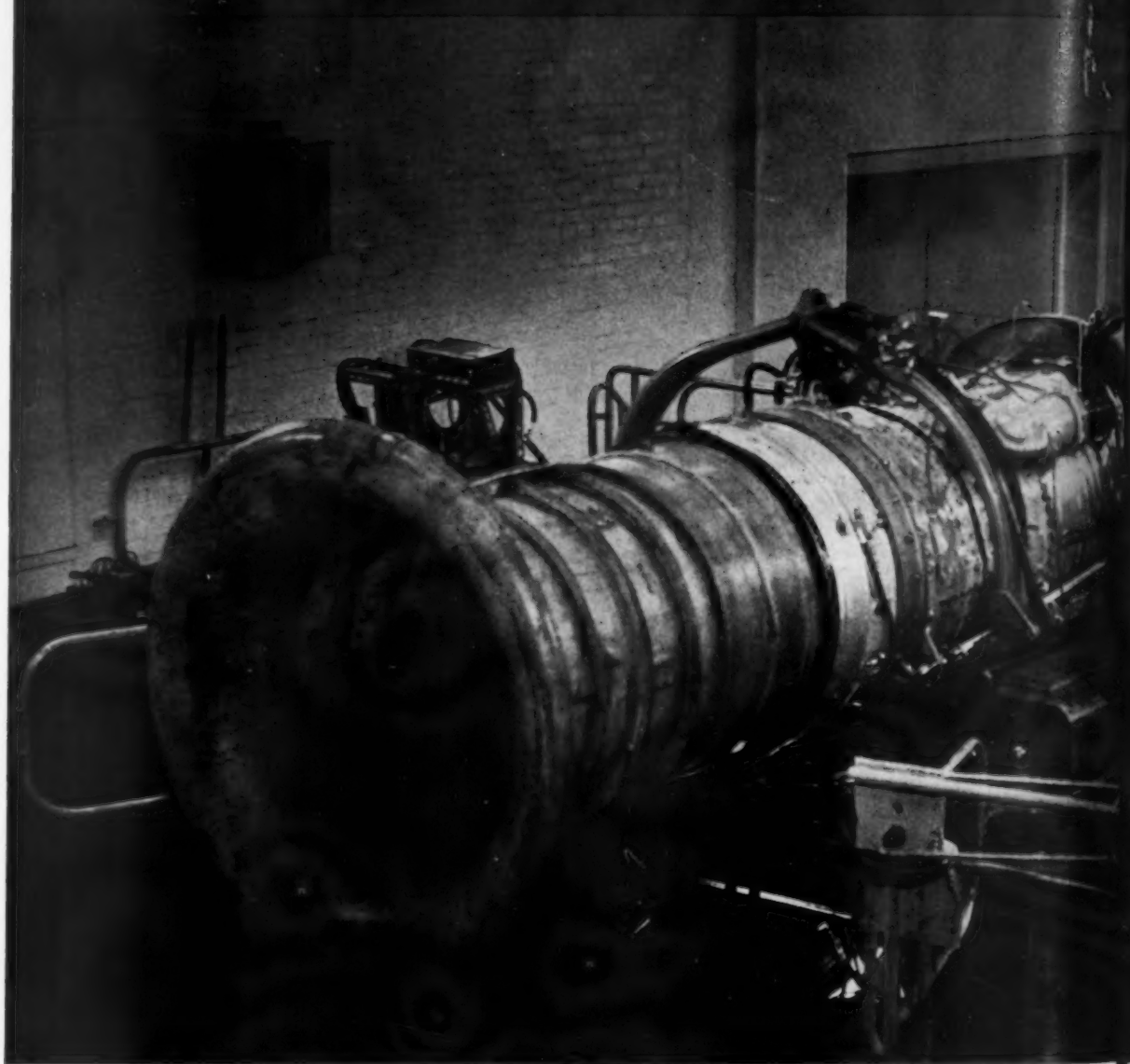
General Sales Mgr.: Louis P. Marachel
V. P. Int'l Region: Robert E. Montgomery (Paris)
V. P. Atlantic Region: John N. Martin
V. P. Central Region: James D. Harrigan
V. P. Western Region: Joseph W. Letzkus
V. P. Int'l Sales Development: Richard Mazzarrini
V. P. Sales Service: Clyde E. Fullerton
V. P. National Accounts: Pierre G. Desautels
Dir. of Sales Schedule Coordination: George V. Lambert

Technical Services

(Kansas City)

General Manager: Raymond M. Dunn, V. P.
Purchasing: Fred G. Betts, V. P.
Maintenance & Overhaul: Alfred E. Jordan, Ass't V. P.
Engineering, Flight Test & Inspection: S. L. Higginbottom, Dir.
Properties & Facilities: P. T. Lafollette, Acting Gen. Mgr.

Bristol Siddeley Olympus delivers 2



Reheat version more than doubles power output of less than three years ago; demonstrates great potential of the Olympus design.

Less than three years ago the Olympus Mk 101 entered RAF service as the powerplant of the Avro Vulcan and was rated at 11,000 lb dry. Rapid development soon resulted in the Mk 200, producing 16,000 lb dry; while today's Mk 201, selected for the improved Vulcan B Mk 2, develops 17,000 lb dry, and 24,000 lb with Bristol Solar fully variable reheat—in still more advanced versions, will be increased to around 30,000 lb

Olympus design not only gives high power for low weight. As Vulcan performance clearly illustrates, it secures three further valuable advantages.

1. Great power at great height.

The Olympus maintains a high cruising thrust for the Vulcan at altitudes above 50,000 ft.

2. Low fuel consumption.

The Olympus gives the Vulcan immense flight duration. It has flown the Atlantic non-stop, from Farnborough to Toronto—3,566 miles—against the prevailing winds, at a point-to-point speed of well over 500 mph.

24,000-lb thrust

3. Outstanding reliability.

In a series of overseas flights, UK-based Vulcans have flown as far afield as the United States, Rhodesia, South America and New Zealand, to pre-arranged schedules. Such was the confidence in the Olympus, that, on the great majority of these flights, no provision was considered necessary for any engine spares whatsoever away from the aircraft's home base.

The handling characteristics of the Olympus have also received the highest praise. According to an official report, "... the Olympus sets a standard of handling at altitude which has never been equalled by any other turbine engine."

Latest achievement in the Olympus story is its selection as powerplant for the new TSR-2 strike reconnaissance aircraft.

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What's Wrong with *Interior Decorators*

A Letter to AIRLIFT

In the inaugural issue of AIRLIFT (April, page 28), interior designer Charles W. Butler presented a provocative view of "What's Wrong with Aircraft Interiors." At the editor's invitation, W. W. "Bill" Littlewood, American Airlines v.p.—Equipment Research, takes up the defense of why transport cabins just don't change drastically. Although written as a letter to the editor, Mr. Littlewood's reply is presented here as an AIRLIFT feature because of its keen, outspoken appraisal of a most controversial design topic.

DUE TO PRESSURE of daily work, I have just now gotten a chance to comment on Charles Butler's article entitled "What's Wrong with Aircraft Interiors?" As you no doubt assumed, I would not necessarily see things eye to eye with Mr. Butler.

From what little I know of him and his work I feel that he is one of the more practical and balanced contributors to the field of interior decoration, whether it be in airplanes or elsewhere. On the other hand, he has the typical defensive attitude of blaming everyone but himself.

My main complaint against interior decorators is that their egotism, a very human characteristic, makes them want to produce something different if not better, something which might be identified with them almost like a signature. Most of them have very little practical background, are of the highly aesthetic and artistic types, and are often hard to work with.

Mr. Butler has proposed nothing new in his idea that a transport airplane should be built around the passengers, their seats and their conveniences. In fact, 20 years ago Arthur Raymond, Vice President, Engineering of Douglas Aircraft Company, presented a most interesting paper before one of our engineering societies, the theme of which was that the passenger and his chair controlled the over-all design of the transport airplane.

It is pretty easy to see that if you seat a passenger in a comfortable chair and give him adequate space dimension and multiply this by the number of passengers to be carried, and allow for aisles, buffets, baggage, lavatories, coat racks, etc., and then build around them a shell in the form of a fuselage cabin, and then append to it space for a cockpit forward and the length aft to support the necessary tail, and add wings, and then provide the engines to propel it and a landing gear to land it and all the other pertinent details to make up an airplane, you have completed a transport design. This was the burden of Mr. Raymond's story, and apparently Mr. Butler considers it a new approach to an old problem.

It has been true that neither manufacturers nor engineers have had a high regard for the sometimes impractical details of interior decorators. The interior decorator whom Mr. Butler has as an ideal and with whom he identifies himself, is a very rare individual, a person with artistic appreciation and know-how plus an understanding of aircraft structural design, aerodynamics and performance, operating factors and all the other things that affect the relationship of the passenger to the interior and environment in which he finds himself.

I note with interest that Mr. Butler once "had the pleasant experience of being retained by an aircraft manufacturer before the basic airplane plans were actually finalized." I think I recognize the airplane to which he refers, but fail to note in it any radical departures from the conventional seat, ash tray, ventilator, call button, hat rack, etc., the monotony of which he so highly deplores. I am not familiar with any particular innovations in passenger comfort or decorative trends in the airplane in question. Perhaps his more recent work on the British VC-10 will incorporate some less conventional and more advanced arrangements.

On the other side of the fence, I think interior decorators look down their long patrician noses at the mundane engineers and businessmen whom they wish to serve and in any event who pay their bills. When Mr. Butler says "The field is being invaded by interior decorators who profess to be able to create all sorts of results by simply using colors and materials," I think his tense is wrong. With a couple of notable exceptions in my experience with interior decorators, I would say that the field *has been* substantially invaded by such individuals who neither have the ability nor the will to learn the business which they profess to serve and who, like the lawyers and doctors, shroud their profession in Latin and other mystic terms to the confusion of the laymen whom they quietly despise.

Let's get it straight. We are not going to substantially modify airplane shapes or sizes or arrangements in consideration of the secondary concerns of cabin interior decoration. A good decorator is one who knows how to take what is given him and make of it an attractive and useful arrangement.

Certainly there are such things as door and window locations, ceiling heights, chair designs, detailed provisions, materials and colors, which are well within his purview both aesthetically and functionally, but we are not going to change the basic height of the structure, nor its essential length or width, nor its doors or windows, nor its general arrangement, all of which affect the economic justification for the airplane, in consideration of what should in the long run be a service to the user and not a dominant influence.

What we need then, I think, is a little humility on the part of the interior decorator, a little willingness to learn and a great willingness to cooperate. We also need the very early backup by management of the respective airline and manufacturer's engineers in their negotiations to include from the beginning a proper consideration of the ultimate artistic and functional effects.

All too often such considerations are neglected until after a contract is signed when it is too late to require the essential cooperation. I would also say that in addition to humility on the part of the interior decorator, we also need a more cooperative and a broader minded approach on the part of the structural and aerodynamic engineers. Willingness to agree that if a thing is right, to an expert it looks right, and that making it so is the primary function of the engineers and qualified professional artists who may be called interior decorators.

Labor Speaks

By GEORGE R. PETTY, JR.
President, Flight Engineers' International Association

Dissension Weakens Labor's Bargaining Power

THE POPULAR CONCEPTION fanned by the anti-labor press that all labor unions are overwhelmingly powerful is directly contrary to the results shown in recent contract negotiations in many major industries. In fact, in the past few years in the airline industry, management has been gaining such a preponderance of bargaining power that unless this trend is stopped by the aggressive and united action of labor, we are in for a paradox of labor strife in years of prosperity.

In spite of the prosperity of the airline industry and its tremendous technological advance to the jet era, the atmosphere at the bargaining tables seems to grow more tense each day. Even in this supposedly enlightened time, employes in the airline industry are subjected to fear of losing their jobs if they work to organize a union. Some airline managements in our industry have been trying to roll back the clock of industrial relations by playing tricks with employe seniority and classification that haven't been heard of since the 1930's. Recently several important disputes have had nothing to do with wages, but were concerned with management's efforts to extend its absolute control or its prerogative in ways which the union had to resist in order to survive as a bargaining agent.

There is ample evidence of the insurgent power of management in the airline industry. In the aviation trade press one reads of the formation of mutual aid pacts for the exchange of profits among airlines to assist in defeating labor unions. In Europe a similar grouping of national airlines exists and poses problems to labor through reduction of force and improved employer bargaining strength.

In Congress the legislators are working feverishly to write a labor bill which will be the most significant victory achieved by management over labor in many years. Furthermore, a bill has been introduced in the Senate, which would prevent unions in one branch of transportation from respecting the picket line of another transport union.

It will be argued that all this anti-labor activity is directed at the mass membership unions and not at smaller craft unions like FEIA. But a look at the airline industry shows that there are less than 100,000 employes organized into relatively small bargaining units more sensitive to management pressures. Most of these employes are organized along class or craft lines in accordance with the tradition of the Railway Labor Act. Such craft-type organization in this industry has been of great benefit to the safety, efficiency, and economy of airline operations, since it provides a method for separate consideration of the problems of individual professions within the industry.

Rapid technological advance of the airline industry has multiplied the pressure on the bargaining representatives of all classes and crafts. The problems of reclassifications of jobs, seniority, job security and technological furlough which the railroad unions faced over a period of a century have been pressure cooked in this industry in 10 years. The result of this pressure has been to place craft unionism in the airline industry in a spotlight and to give rise to speculations about a future.

In the early days of the American Federation of Labor, craft unions survived because of a tradition of solidarity with their brother workers, which made even a small group of craftsmen a powerful bargaining unit. Apparently, this same tradition does not seem to exist in the airline industry among all unions. The Air Line Pilots Association has a specific policy which forbids its members to respect a picket line set up by another union. This one single fact has been one of the most disruptive influences in airline labor. Many times it has been pointed out that there is a studied lack of cooperation among union leadership in the airline industry and many union representatives called for some form of cooperation to solve mutual problems. But it seems to me that such cooperative resolution of problems has in the past arisen out of a feeling of solidarity among the workers involved. When such a feeling of solidarity exists among airline unions, cooperation at the top can become a fact. That the sentiment for such solidarity exists has been demonstrated recently by the formation of the Airline Council for Trade Union Action on Eastern Air Lines.

Cooperation cures difficulties

The leadership of the labor movement in other industries has been able to achieve a cooperative approach to its problems because of a tradition of mutual respect and assistance. If the leadership of the AFL-CIO were today to take a position demanding a return to the principles which made trade unionism strong in the various trades and among industrial unions, many of the difficulties facing airline labor and management would disappear. But if such efforts were to have the effect of weakening craft union principles in the airline industry, the safety and efficiency of airline operation would suffer and labor would be weakened.

The benefits of industry-wide strength for all workers can be obtained by the cooperation of autonomous and independent craft unions. On the other hand, the entire labor movement can be decimated by the continued use of bargaining strength by one union against another. It is possible and desirable, for instance, to remove safety problems from the bargaining table and place them before the government agency charged with responsibility for such questions. If such a step had been taken by airline labor in recent years many days of strikes could have been avoided.

It is a matter of no small satisfaction to FEIA that the application of trade union principles in the International Transport Workers Federation, of which many AFL-CIO affiliates are members, has brought strong support for the union. Similar principles applied in the United States could renew the strength and responsibility of airline labor.

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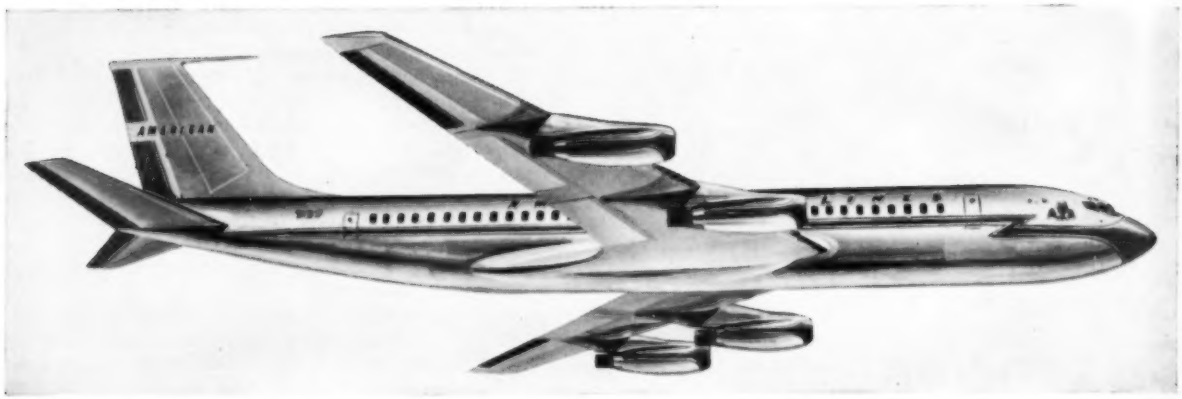

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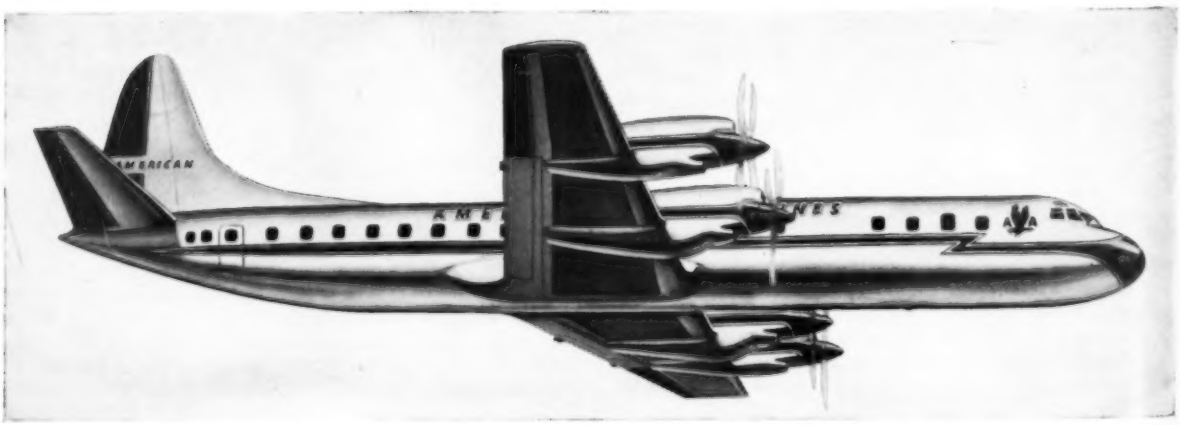

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Locals Earnings Still Need a Boost

Post Office mail bill, rate-of-return proposals, may bring much-needed financial help to local service carriers.

By SELIG ALTSCHUL
Contributing Editor

There is no substitute for earning power to infuse financial respectability into the local service airlines. Two recent developments, if implemented, may greatly facilitate the generation of earnings for that group.

These harbingers of better things to come are found in recommendations advanced by the Post Office Department and a Civil Aeronautics Board Examiner.

The Post Office, in seeking authority from Congress to move any class of mail by air whenever it is determined to be in the public interest, can prove particularly beneficial to the local service airlines.

During 1958, the local service airlines showed a net income of only $633,000 but received some $32.7 million in subsidy payment as against $1.4 million in mail service compensation. This compared with passenger revenues of $56.5 million. For fiscal 1960, the CAB has previously estimated a subsidy bill of about $49 million for this group. The broadened Post Office authorization could utilize much of the capacities now available in the schedule pattern of the local service carriers thus decreasing their dependence upon subsidies.

But new rate is needed

The limited experimental airlift of first class air mail by local service airlines has meant recent annual revenues of slightly more than $100,000 in carrying an annual volume of about 389,000 "non-priority" mail ton-miles, or at an average rate of 26 cents per ton-mile. By contrast, the same group of carriers are estimated to have received $1,254,000 in service mail pay for carrying 1,331,000 "priority" air mail ton-miles during fiscal 1959. The average rate, in this instance, being around $1.06 per ton-mile.

Along with increasing volumes of "non-priority" mail for the local service airlines, a higher unit rate for this carriage is clearly indicated if such activity is to have any significant impact upon the revenues and earnings of the industry. The fact remains that a broad extension of moving first class mail over the local service airlines could create a major source of new revenues for the group. And with a more compensatory rate on this volume of business, the group could have a big boost towards attaining economic self-sufficiency.

Still another favorable development is found in the recent initial decision of Examiner William J. Madden in the "Rate of Return Local Service Carriers" proceeding. In this instance, many of the financial facts of life are recognized and recommendations advanced which can prove helpful to the industry.

Recommends 12.25% return

Mr. Madden, in a cogent analysis of the local service airlines, concluded that "the rate of return heretofore used to fix the profit element . . . has not been sufficient to maintain the financial integrity of the carriers, attract capital on reasonable terms, and return reasonable compensation to the investors." This was followed with the recommendation that a rate of 12.25% is a "fair and reasonable return on investment" for closed rate periods, 8.5% for part or open rate periods and a floor of 3¢ per plane mile for use as a "temporary expedient in special cases."

This recommendation represents a material improvement over the 9.5% rate temporarily in effect in recent CAB determinations and a rejection of the same rate as proposed by the Bureau of Air Operations of the CAB in this proceeding. A group of carriers, represented by the Conference of Local Airlines, advocated a 14% return on the recognized investment to attract capital. Further, an operating ratio approach advocated by many of the carriers was also turned down by the Examiner.

The proposal to allow the local service carriers a higher rate of return also carries with it the implicit increase in subsidy support necessary to implement the desired level of earnings. This is controlling and can be a constructive development forward for the industry—if the full CAB now accepts the Examiner's findings. It will also serve to obviate the application of many complex formulas in administering subsidy support to the industry and which merely tingle the peripheries but do not get to the heart of the problem.

Cumulative operating results have, for the most part, led to a deterioration in the financial position of the local service airlines.

The inadequate rate of return previously permitted the carriers along with the extensive disallowances of costs for mail rate-making purposes has been a major reason in the mail pay failure to afford profitable results.

Lack of profitability—on the level where it has significance to the investor—on the net income basis—has been a paramount factor in discouraging investment support for the group.

Unfortunately, the local service airlines were undercapitalized from the outset.

At December 31, 1958, the local service total capitalization comprised 59% in debt and 41% in equity. The domestic trunk airlines, as of the same

Revised Subsidy Plan

CAB Bureau of Air Operations has asked local airlines to comment on a revised plan for calculating subsidy using a class rate, specifically the legality of having rates of return vary from 38.57% to −14.52% after profit-sharing provisions. Carriers are to estimate subsidy staff proposal would require for calendar 1960. Industry comments are due Sept. 1.

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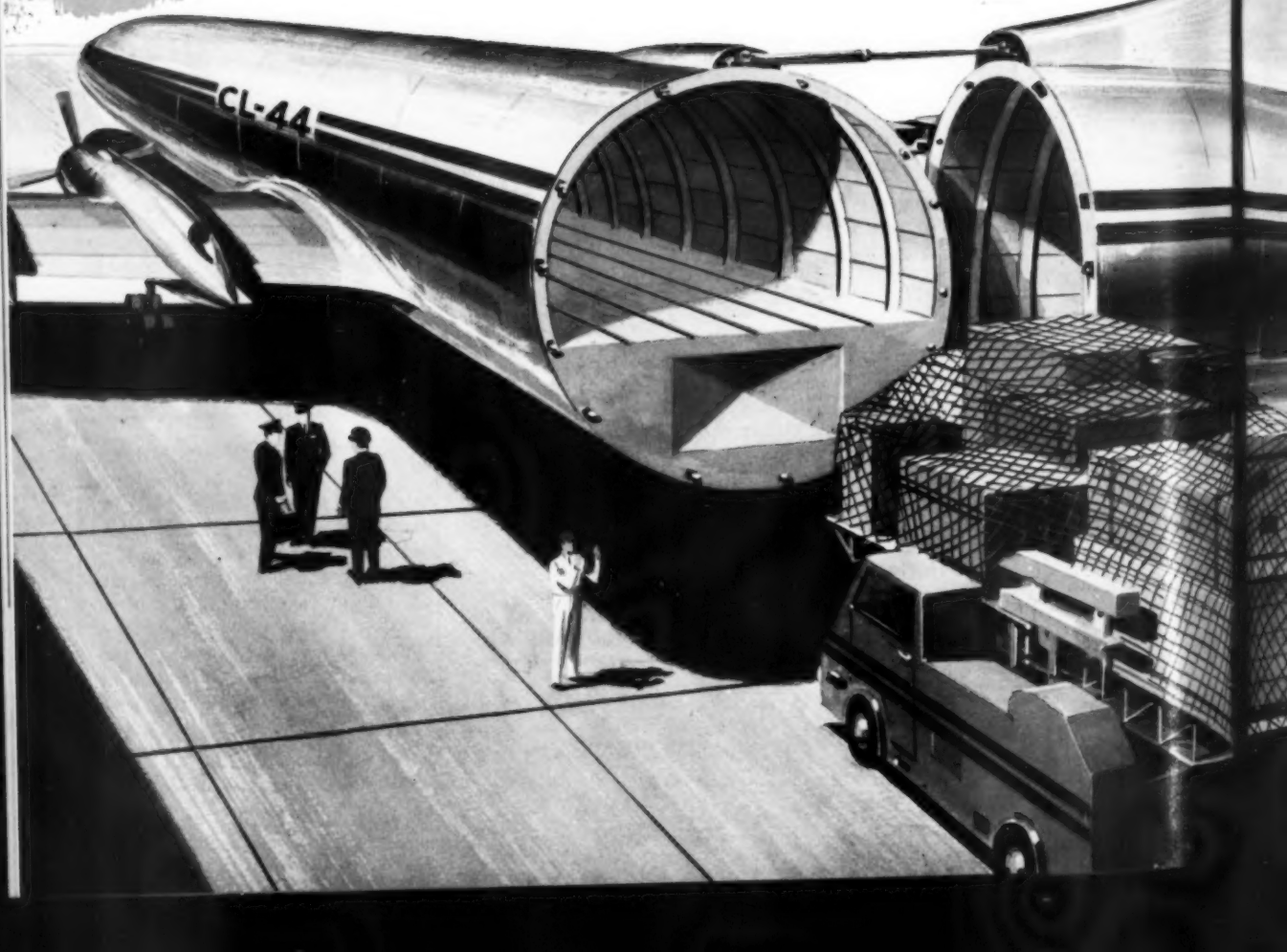

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date, reported 54% of their total capitalization in net worth.

Further, the local carriers have been forced to live on a hand-to-mouth basis. This is reflected in the heavy proportions of current liabilities outstanding. For example, at the 1958 year-end such liabilities comprised 45% of the group's total assets. The trunks, by contrast, had less than 20% of their total assets in current liabilities.

Stated another way, the local service carriers, at December 31, 1958, had total assets of $56.4 million which were supported by $12.6 million or 22% net worth. This demonstrates heavy trading on the equity and is a source of extreme vulnerability in any period of adverse operations caused by adjustments of one sort or another.

Lack of sustained earnings and limited financial resources for a long time plagued the local service carriers in their capability to augment or modernize their aircraft fleets.

To help solve this dilemma, the CAB and industry groups sponsored legislation which would permit the Board to guarantee loans not to exceed $5 million per carrier.

No fix for earning power

This action, while facilitating the purchase of new aircraft by about seven carriers thus far, did nothing to solve the industry's basic problem—the lack of sustained earning power.

Nor was equity capital encouraged. In fact, the existence of the CAB guaranty, in effect, encouraged "trading on the equity". Unfortunately, the loan guaranty was seized upon by officials in the Board and by others as a substitute to create conditions where earnings can be generated. In other words, the utilization of the loan guaranty temporized with the ailments of the local service airlines without effecting any lasting remedies.

The Board belatedly recognized the need for the group to shore up its capital structure with more equity and has become more insistent that this be done in recent cases where its guarantee on loans has been requested.

What has turned out to prove inadequacy in mail subsidy has been compounded by the tardiness in establishing permanent mail rates for many of the carriers.

This has led to poor reading of financial accounts in a number of annual reports. A few carriers have attempted to meet this problem by supplying their own estimate of mail pay due and including such amounts in their revenue and balance sheet accounts. This process helps eliminate red figures and avoids erratic fluctuations in reported results from year to year. Such estimates, of course, are without substance until and unless the Board issues a rate order giving the carrier the right to collect.

North Central Airlines, in recent years, has followed this policy of anticipating estimated additional mail pay due it. In its 1958 annual report, the company has determined that it has $287,505 of additional mail pay applicable for 1958. It carries $475,232 as an account receivable at the 1958 year end which amount includes the 1958 item and $187,727 which is the unpaid portion of the 1957 and 1956 estimated break-even need and return on investment. Without such estimated mail revenues, North Central would have been unable to report net profit of $108,184 and $80,791 for 1958 and 1957, respectively.

Pacific Air Lines is another carrier following the same practice. In its 1957 annual report (the 1958 report has not yet been published), the company has included 66 2/3% of the additional mail pay claimed for the period from January 9, 1956 to December 31, 1957. Only two-thirds of the additional mail pay claimed is taken into its accounts, according to the company, to allow for disallowances. The added mail pay included in its income accounts are $276,590 for 1957 and $249,660 for 1956. Accounts receivable at the 1957 year end include $526,250, representing such estimated additional mail pay.

In both instances, the independent auditors did not take exception to this practice.

At Mohawk and West Coast

A more conservative approach in this respect was followed by Mohawk and West Coast. Mohawk estimates that it should receive additional mail pay of $1,094,103 for the period from July 1, 1955 to April 30, 1958 but does not take this amount into its formal accounts. Without such adjustment, Mohawk reported a net loss of $814,929 for 1958.

West Coast also anticipates $680,000 in additional mail pay from December 1, 1956 to December 31, 1958 but does not incorporate this amount in its 1957 and 1958 accounts. The consequence is a reported loss of $143,938 for 1958.

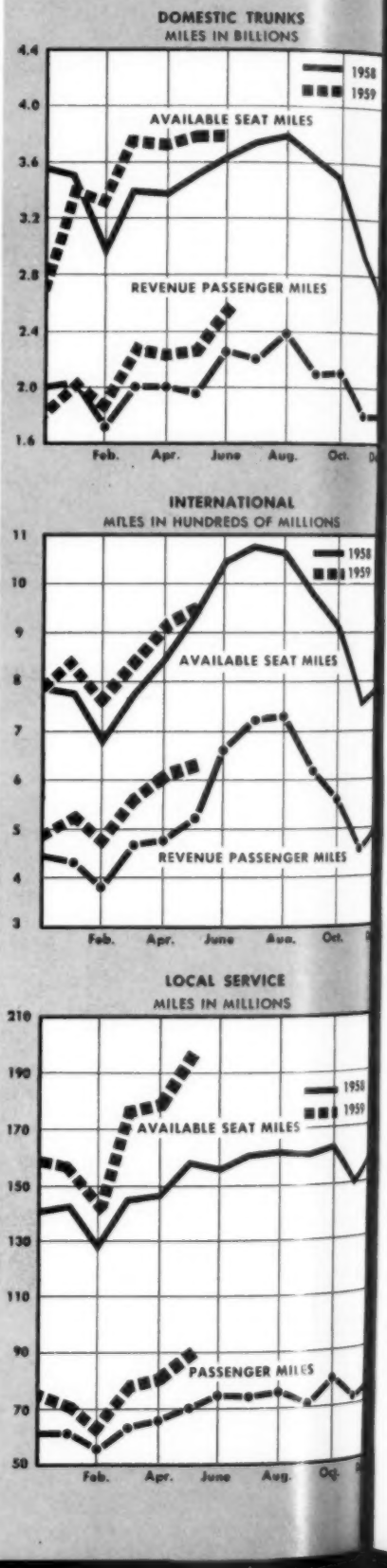
It is small wonder that any basic improvement in earning power and placing the group on a current basis will bring financial respectability to the local service airlines.

All-Cargo Statistics

Effective with this issue, monthly airline traffic statistics are being expanded to include all-cargo airlines. (See page 45). Follow the progress of this growing segment of air transport in future issues of *AIRLIFT*.

HOW'S TRAFFIC

Among U.S. Airlines



U.S. Airline Traffic for May 1959 vs. 1958

This complete summary compiled by AIRLIFT Magazine from Official CAB Data

	Revenue Passengers (000)			Revenue Passenger Miles (000)			Total Ton-Miles Rev. Traffic			% Available Ton-Miles Used	
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958
DOMESTIC											
American	659	622	5.9	463,829	414,111	12.0	55,199,227	49,392,674	11.8	61.2	52.7
Braniff	183	177	3.4	79,835	74,722	6.8	8,921,062	8,220,412	8.5	50.7	46.9
Capital	327	329	— 0.6	134,159	131,565	2.0	14,016,464	13,830,720	1.3	50.2	43.3
Continental	85	66	28.8	41,556	29,939	38.8	4,331,809	3,211,778	34.9	48.4	37.8
Delta	261	224	16.5	127,191	110,321	15.3	14,169,371	12,296,043	15.2	51.7	50.9
Eastern	700	618	13.3	360,128	323,129	11.5	37,633,237	33,630,054	11.9	39.9	45.2
National	133	107	24.3	78,913	64,656	22.1	8,587,908	7,104,113	20.9	42.3	44.5
Northeast	101	68	48.5	39,982	27,453	45.6	4,072,479	2,819,622	44.4	36.4	35.3
Northwest	150	125	20.0	111,953	86,252	29.8	12,846,968	9,825,126	30.8	44.9	41.8
Trans World	439	384	14.3	377,289	306,221	23.2	40,499,659	33,141,612	22.2	60.3	53.5
United	601	568	5.8	415,525	403,669	2.9	50,107,128	47,339,812	5.8	57.9	55.3
Western*	121	.....	.....	63,530	60	.....	6,833,724	5,715	.....	48.3	44.3
TOTALS	3,760	3,288	14.4	2,293,890	1,972,098	16.3	257,219,036	220,817,681	16.5	52.0	49.6
INTERNATIONAL											
American	8	8	.....	7,850	7,145	9.9	1,083,268	1,068,575	1.4	57.6	44.3
Braniff	4	4	.....	7,781	6,693	16.3	976,986	841,042	16.2	46.5	39.5
Delta	5	4	25.0	5,748	5,794	— 0.8	690,491	704,634	— 2.0	45.9	42.1
Eastern, Overseas	33	28	17.9	47,143	37,864	24.5	5,073,868	4,096,377	23.9	56.2	51.2
San Juan	25	20	25.0	37,987	29,003	31.0	4,065,131	3,119,652	30.3	63.4	54.2
Bermuda	4	5	—20.0	3,549	4,349	—18.4	369,248	450,443	—18.3	32.5	44.6
Mexico	4	3	33.3	5,607	4,512	24.3	639,489	526,282	21.5	43.0	42.8
National	6	5	20.0	4,448	3,309	34.4	526,327	404,944	30.0	43.8	35.4
Northwest	14	12	16.7	31,567	25,770	22.5	5,572,325	4,590,768	21.4	63.1	61.6
Hawaiian	2	1	100.0	5,494	3,660	50.1	632,666	437,063	44.8	60.4	54.7
Panagra	10	11	— 9.1	14,069	13,464	4.5	2,091,702	2,010,853	4.0	58.7	55.9
Pan American, System	251	210	19.5	381,887	309,189	23.5	52,134,584	42,374,903	23.0	65.6	58.4
Latin America	97	79	22.8	107,765	87,300	23.4	15,384,827	13,200,161	16.5	62.9	58.6
Atlantic	123	106	16.0	162,132	142,387	13.9	21,081,907	18,240,836	15.6	63.7	55.2
Pacific	27	21	28.6	107,622	75,324	42.9	14,986,751	10,314,365	45.3	72.4	64.9
PDX/SEA-HON.	1	1	.....	3,902	2,395	62.9	461,509	291,006	58.6	45.8	38.9
Alaska	4	4	.....	4,368	4,178	4.5	681,099	619,541	9.9	53.9	57.4
Trans Caribbean	6	7	—14.3	10,351	11,714	—11.6	1,015,674	991,593	2.4	72.3	78.1
Trans World	34	30	13.3	102,611	80,055	28.2	13,329,010	9,974,732	33.6	69.8	51.5
United	9	8	12.5	23,894	18,986	25.8	2,706,153	2,180,276	24.1	73.9	60.0
Western	3	.....	.....	5,303	384	100.0+	592,137	41,289	100.0+	53.9	68.5
TOTALS	383	327	17.1	642,652	520,367	23.5	85,792,525	69,279,986	23.8	64.5	56.2
LOCAL SERVICE											
Allegheny	48	40	20.0	8,258	6,904	19.6	848,987	703,963	20.6	46.9	45.6
Bonanza	19	16	18.8	4,610	3,715	24.1	460,787	371,098	24.2	49.7	44.5
Central	16	11	33.3	2,978	2,107	41.3	311,332	216,458	43.8	36.5	30.6
Frontier	24	21	14.3	6,042	6,088	— 0.8	695,906	679,961	2.3	47.2	61.8
Lake Central	20	15	33.3	3,300	2,307	43.0	338,677	236,340	43.3	48.7	38.6
Mohawk	51	39	30.8	9,788	7,309	33.9	974,294	731,507	33.2	54.5	48.4
North Central	81	60	30.0	14,299	10,226	39.8	1,466,078	1,034,989	41.7	42.5	45.1
Ozark	50	36	38.9	8,652	5,988	44.5	887,521	612,824	44.8	46.5	45.4
Pacific	39	32	21.9	8,676	7,245	19.8	855,341	714,937	19.6	54.6	52.4
Piedmont	44	34	29.4	9,384	7,062	32.9	948,829	716,636	32.4	47.2	48.8
Southern	23	18	27.8	4,050	3,250	24.6	423,883	334,720	26.6	39.7	36.0
Trans-Texas	23	19	21.1	5,585	4,371	27.8	594,719	467,601	27.2	44.6	37.1
West Coast	29	22	31.8	5,462	3,814	43.2	540,111	381,131	41.7	49.1	43.5
TOTALS	467	363	28.6	91,084	70,386	29.4	9,346,465	7,202,165	29.8	49.5	45.4
HELICOPTERS											
Chicago	17	10	70.0	315	180	75.0	31,402	18,968	65.5	44.1	32.4
Los Angeles	4	4	.....	130	110	18.2	20,028	16,987	17.9	63.0	59.3
New York	13	6	116.0	239	119	100.8	26,972	14,034	92.2	52.3	41.6
TOTALS	34	20	62.0	684	409	67.2	78,402	49,989	56.8	50.7	41.3
TERRITORIAL											
Caribair	23	18	27.8	1,583	1,253	26.3	173,563	135,433	28.2	66.7	58.5
Hawaiian	38	29	31.0	5,604	4,358	27.3	577,547	488,636	18.2	58.6	55.9
Trans Pacific	17	14	21.4	2,322	1,915	21.3	197,408	162,893	21.2	54.8	54.8
TOTALS	78	61	27.9	9,509	7,526	26.3	948,518	786,962	20.5	59.0	56.1
ALASKA											
Alaska	10	6	66.6	9,411	2,963	217.6	1,195,249	618,506	93.2	52.5	42.3
Alaska Coastal	6	5	20.0	588	463	27.0	68,697	56,178	22.3	60.0	64.6
Cordova	1	1	.....	214	137	56.2	75,337	27,295	176.0	44.0	41.9
Ellis	6	5	20.0	401	327	22.6	45,329	38,249	18.5	65.9	73.1
Nor. Consolidated	2	2	.....	742	553	34.2	185,603	138,442	34.1	55.4	55.6
Pacific Northern	11	10	10.0	10,650	9,230	15.4	1,584,957	1,370,488	15.6	62.0	62.8
Reeve	1	1	.....	1,262	701	80.0	236,484	179,859	31.5	60.0	54.3
Wien	3	2	50.0	1,069	743	43.9	453,615	325,624	39.3	60.9	58.8
TOTALS	40	32	25.0	24,337	15,117	61.0	3,845,271	2,754,641	39.6	57.7	55.3

ALL CARGO

(Ton miles in thousands)

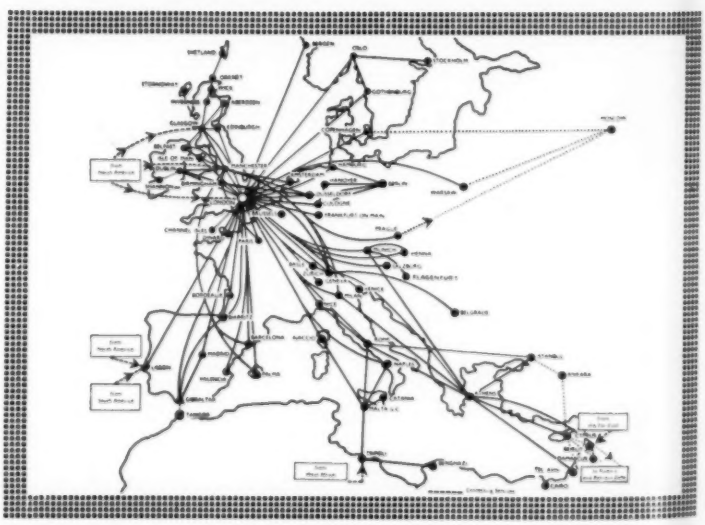
	Mail			Express			Freight			Total Scheduled			Total All Services**		
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change
Aerico	5	4	25.0	11	7	57.1	186	182	2.2	202	193	4.7	3,043	3,672	—17.1
Flying Tiger	42	38	10.5	63	30	110.0	6,997	5,645	23.9	7,102	5,713	24.3	14,003	11,369	23.2
Riddle	9	24	—62.5	33	20	65.0	1,781	1,927	— 7.6	1,823	1,971	— 7.5	4,413	6,488	—32.0
Slick (C)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,470	1,854	33.2
Aerovias Sud	.....	.....	.....	.....	.....	.....	550	557	— 1.3	550	557	— 1.3	595	568	4.8
Seaboard & Western	491	9	100+	.....	.....	.....	2,205	919	139.9	2,696	928	190.5	2,879	4,299	—33.0
TOTALS	547	75	629.3	107	57	87.7	11,719	9,230	270	12,373	9,362	32.2	27,403	28,250	—3.0

*Western on strike during May 1958. Data reflects charter service. Revenue passengers totaled 256.

**Includes charter, military contract and in isolated instances passenger ton-miles in charter operation. (C) Charter operation only.

BUSIEST AIRLINE IN EUROPE

If you fly anywhere inside Europe, it's more than even chances you'll fly BEA. In the last financial year for instance, BEA carried over 2,765,000 passengers—well over half the total number of air passengers to and from Europe on scheduled services. What is more, BEA operates more scheduled services to more destinations in Europe than any other airline. These facts highlight the success of BEA's policy of development and expansion —a policy aimed at providing Europe with an air-service second to none.



EUROPE'S FOREMOST AIRLINE

B R I T I S H E U R O P E A N A I R W A Y S

Circle No. 17 on Reader Service Card.

Two Approaches to Jet Baggage Handling

Two entirely different approaches to jet baggage handling—both of which are said to speed up the process substantially—are used or planned by Continental Air Lines and United Air Lines.

CAL is now using trucks equipped with endless belts to load and unload its Boeing 707s. UAL revealed details of the pre-loaded container system it will employ when it puts the Douglas DC-8 into service next month.

The $7,700 CAL truck, powered by a Ford 6-cylinder 110-hp industrial engine, was designed by Cochran Equipment Co., Salinas, Calif. Inside is an endless belt which runs the length of the body and the front of which fits directly into the 707's cargo hold.

On a full flight, a second truck noses up to the back of the first one, and the two belts meet. Local bags pass over the belts to the second truck, while interline bags are pulled off in the first unit. The second truck leaves as soon as it is full. Each vehicle holds 72 bags on shelves. Same truck system is used for loading.

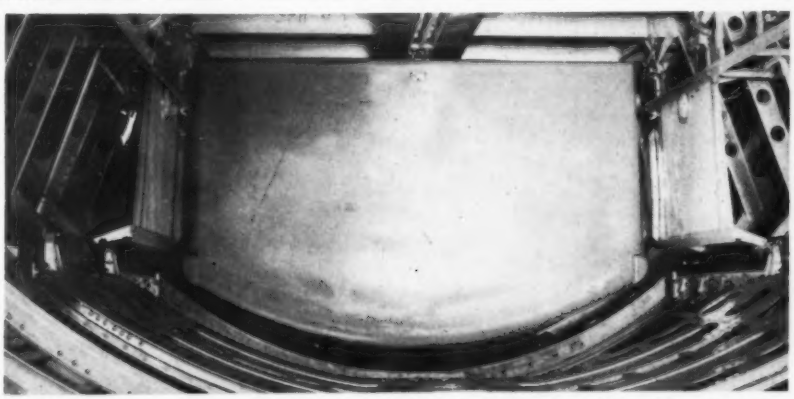
CAL claims that the trucks have enabled it to have luggage ready for pickup by passengers in claims areas within six to seven minutes after arrival.

Each United DC-8 will carry 11 fiberglass containers, each holding 25 bags or 1,100 lbs. of cargo. The tub-shaped containers match the contour of the cargo compartments in the underside of the plane, and are lifted in and out by an electric hoist. Inside the compartment, they fit into place on a track. Hoist and positioning mechanism are integral parts of the plane.

UAL says the containers will make it possible to remove baggage from the DC-8 in less than three minutes. They were developed by UAL and Douglas Aircraft Co.

At United, it's pre-loaded containers

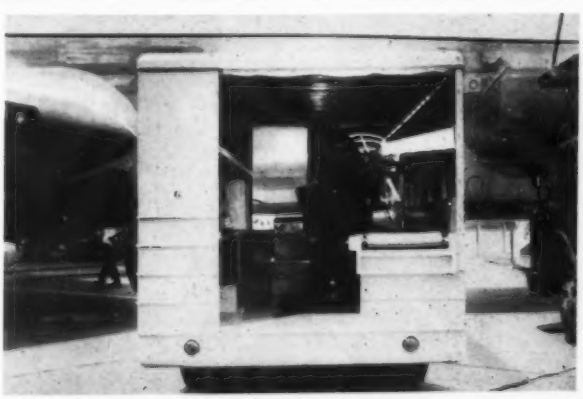
UAL container is being attached to electrically-powered hoist.



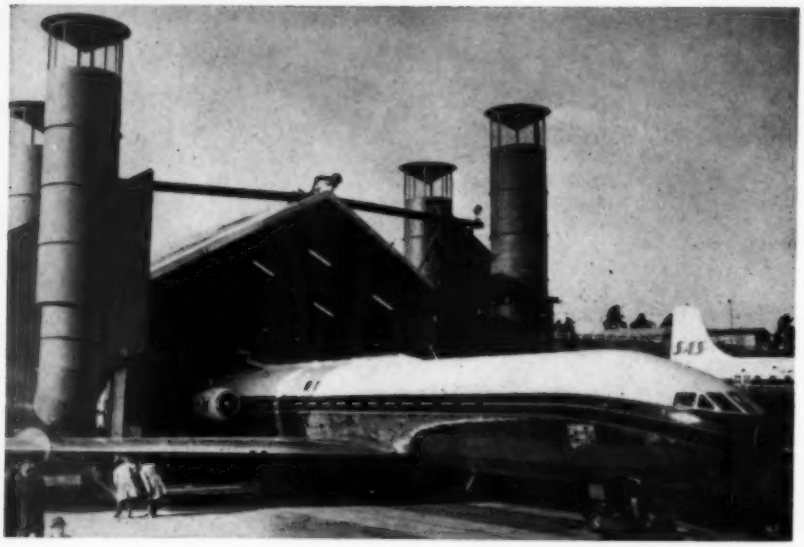
Inside the cargo compartment, the pre-loaded container slides into place along an overhead track. Container matches the contour of the compartment.

At Continental, a special ground truck

Endless belt on Continental's truck can be seen extending into the Boeing 707's cargo hold on the left.



A Continental agent takes bags from belt and stows them on shelves. Each vehicle will hold 72 pieces of baggage.



How SAS Silences the Caravelle

SAS has cut the runup noise of the Caravelle from 130 to 45 decibels with a new fixed engine silencer.

The silencer, located at Bromma Airport in Stockholm, was designed for SAS by acoustics expert Stig Ingemansson and was built by Rostfria Andersson steel company.

The unit is housed in a steel and concrete hangar. Silencing equipment consists of two intake silencers, two exhaust silencers, and two secondary air inlets. The silencers are of the screw type which cut the air up as it passes through. The secondary air acts as a coolant for the exhaust gas as it is passed to the two-stage exhaust silencers. First stage of the exhaust silencer is a double-lined tube for low frequency damping, and the second stage is the same as the inlet silencers.

Aircraft to be runup are towed into the hangar tail first and closed in by two 20-ton steel doors. The doors are equipped with pneumatic rubber linings which mold to the contour of the fuselage.

Test supervision is made through an insulated window in the hangar and control is through radio contact with the operator in the cockpit.

Jet Fuel: 805,000 Barrels by '65

Jet fuel will account for 83% of the aviation fuel used by 1965, according to a recent study by a major U.S. oil company.

The report, compiled from airline and military aviation data, predicts total aircraft fuel usage will increase 30% from 610,000 barrels per day in 1958 to 805,000 bpd by 1965. Of the 1958 level, 335,000 bpd or 55% was in jet fuel sales.

Reason for the increase is the advent of commercial jets. While military jet fuel used is expected to continue rising for the next few years, a leveling off at about 400,000 barrels daily is anticipated by the mid-1960s. Airline use of jet fuel is expected to rise from 5,500 bpd in 1958 to 260,000 bpd in 1965, while piston fuel sales will decline from 113,000 to 25,000 bpd.

In estimating the airline figures, the report assumes an annual rate of traffic increase of 9½%, with utilization rates somewhat higher than those experienced today.

ESTIMATED U.S. AVIATION FUEL DEMAND

AVGAS

	Civilian Domestic	Exports	Military	Total
1946	25,000	5,400	11,200	41,600
1951	51,200	29,700	94,000	174,900
1958	126,500	40,500	108,000	275,000
1960	83,900	35,000	98,000	216,900
1965	42,400	30,000	65,000	137,400

Jet FUEL

	Civilian Domestic	Exports	Military	Total
1946	500	.....	1,000	1,500
1951	4,300	.....	35,000	39,300
1958	16,000	.....	319,000	335,000
1960	116,200	.....	361,000	477,200
1965	268,300	.....	400,000	668,300

Airline travel is expected to rise from 27.1 billion passenger miles in 1958 to 46.4 billion in 1965. Air freight is expected to increase at a rate of 13% per year, and use of available ton-miles is expected to rise 8.8% per year from 3.3 billion in 1958 to 6.0 billion in 1965.

Clear Field in Recorders Shapes Up for Waste King

Airline electronic engineers are openly disappointed (and don't hesitate to say so!) over the evacuation of the electronics manufacturers from flight recorder development.

Less than 12 months ago there were at least a dozen firms actively participating with Arinc's Airlines Electronic Engineering Committee to develop a "characteristic" for such a device. The only company left in the "competition" today and now producing the only Arinc spec. unit is Waste King Mfg. Co. of Los Angeles (*AIRLIFT*, July, p. 50).

Among the firms no longer active in the airline recorder development are Minneapolis-Honeywell, Emerson Research Laboratories, Soundscriber Corp., Lockheed Missiles & Space Div. and Midwestern Instruments.

Rohr Aircraft to Build Reversers for JetStar

Lockheed's JetStar small, multi-engined jet transport for both military and executive markets will be equipped with "target" type thrust reversers designed and built by Rohr Aircraft Corp., San Diego, Calif.

Described as light, simple, and easy to maintain, the thrust reversers will provide the JetStar with maximum capabilities for operations at all sizes of airports.

Mechanically, the Rohr system is similar to the company's prototype unit built for tests on a J57 engine, although the JetStar configuration is much smaller and is nacelle rather than engine mounted. Reversing action of turbine exhaust gases is in a vertical plane rather than horizontal in order to avoid directing gases at the fuselage side.

Thrust reverser doors form part of the nacelle when in a forward thrust position. Hydraulically actuated, the reverser doors swing back from the nacelle top and bottom, and close in the jet exhaust stream to deflect the thrust up and down and at a forward angle.

Said to be safe, dependable and economical to produce, the design places all working parts of the reversing mechanism out of the gas path during flight.

Sikorsky Eyes GE T64 For S-60 'Crane'

General Electric reports that Sikorsky is seriously considering the use of GE's T64 turboshaft in the S-60 "flying crane."

The helicopter firm would like to wait for development of some variation of the Pratt & Whitney JT12, a Sikorsky official said recently (*AIRLIFT*, July), but does not want to jeopardize the future of the S-60 by holding off too long.

The S-60 presently uses two P&W R2800 piston engines, and Sikorsky figures turbine power will raise the helicopter's payload from the present 12,000 lbs. to about 17,000 lbs. with considerable increase in endurance.

The T64 (July *AIRLIFT* p. 55) is rated at 2,650 shp in the turboshaft version. Its specific fuel consumption is 0.506, and shaft speed is 5,200 rpm.

Current range limitation on the S-60 is about 100 mi.

Essentially, the S-60 is the Sikorsky H-37 with a load-free boom in place of the fuselage, and a glass-enclosed cab at the front. The present engines, rotor system, and transmission are the same as the H-37.

Sikorsky hopes to sell the S-60 to commercial and military operators as a hybrid workhorse. The pilot's seat is mounted on a swivel so it can be rotated during loading for greater visibility.

The load is attached to an electromechanical hoist suspended beneath the rotor centerline for maximum stability. Automatic stabilization equipment will be added later.

Sikorsky is aiming at a price of $750,000 for the complete S-60.

First IATA Air Safety Statistics

It is rare that IATA accident statistics come to be published, although they are always made known to member airlines. Therefore the following are of interest even though they refer only to the years 1952 through 1957. The number of accidents in 1957 was the lowest since 1952 and the number of passengers killed in 1957 was the lowest since 1946.

	1952	1953	1954	1955	1956	1957
IATA Membership	67	70	71	73	76	81
Members Reporting	64	68	70	72	74	71
Members With No Fatal Accidents	52	48	54	53	55	56
Aircraft Miles (Millions)	805	921	984	1,094	1,222	1,351
Revenue Passengers (Thousands)	32,638	39,485	44,296	51,666	58,368	64,508
Fatal Accidents	16	25	21	23	24	20
Number Aboard: Fatalities:						
Crew	61	80	81	81	86	62
Passengers	295	299	318	355	491	273
Total	**356**	**379**	**399**	**436**	**577**	**335**
Passenger Fatalities:						
Total	**295**	**299**	**318**	**355**	**491**	**273**
Average per Accident	18.4	12.0	15.1	15.4	20.5	13.6
Per Million Passengers Carried	9.04	7.57	7.18	6.87	8.41	4.23
Per 100 Million Passenger Miles	1.41	1.19	1.12	1.06	1.27	0.63
Passenger Fatality (Millions)	70.92	83.89	89.69	94.33	78.93	159.0

TRAINING

American Goes Mobile with Jet Simulators

American Airlines has unveiled its mobile 707 flight simulator. American plans to truck the unit from base to base, giving as many crews as possible training before airplane deliveries are complete.

In all, American plans to have 125 complete crews ready by the time it receives its initial 25 707s.

When the trailer reaches its destination, hydraulic jacks expand the simulator room to a width of 12 ft. from its original eight.

The simulator is complete with control feel, motion about all axes, sound, and instrumentation. Later this year, Curtiss-Wright's Electronics Division, makers of the simulator, will install a visual television system which will allow pilots to "land" the simulator.

American's 707 training program calls for four weeks of ground school, 20 hrs. simulator time, and 15 to 20 hrs. actual flying time.

To date, 630 hrs. have been logged in the simulator. Operating cost is about $200 per hr.

SAFETY

BEA to Use Day-Glo on Jets, Turboprops

British European Airways has announced it will paint its airplanes with day-glo paint.

BEA plans to cover the entire wing with red day-glo, and add a red square to the vertical tail. The fuselage roof will remain white, and a lengthwise black stripe will be run from nose to tail.

Decision was prompted by the last fatal BEA crash several months ago when an Italian fighter collided with a BEA Viscount.

The new color scheme will make its debut next year on BEA Comets, Vickers Vanguards and Viscounts.

MEETINGS

Champion Conference Ends

After 14 consecutive years of highly successful spark plug and ignition conferences staged for airline technical personnel, Champion Spark Plug Co. has decided to end the series. The reason: airline ignition has grown up out of the "horse and buggy" era. With jets coming into the picture, little remains in piston engine R&D that isn't already known. In its stead, early next year Champion will launch a similar conference directed at business aircraft operation.

Forecast: Better Weather Service by 1964

Within about 30 days, FAA, the Air Force and the Weather Bureau are expected to sign an initial contract with United Aircraft Corp. for a five-year, multi-million dollar program aimed at modernizing weather service.

The project takes in a system of automatic observation, display and data processing of observed and forecast conditions. The information would be immediately available to tower operators and traffic controllers for relay to pilots in flight.

Most of the equipment need is already in being, and FAA, USAF and the Weather Bureau are concentrating on the engineering required to develop an effective, practical system. The agencies plan to install nine experimental stations at civil and military airports, with first units going into operation within about a year. It is also hoped that some of the unmanned observing stations, though not equipped with the complex computer systems, will be in operation before the end of the five-year target date.

Sites chosen as experimental stations include Idlewild and Washington National as commercial fields, Teterboro as a general aviation center, and McGuire and Hanscomb Air Force Bases, and Oceana NAS for military fields. Other units will be placed at the National Aviation Facilities Experimental Center at Atlantic City, N.J. and at the National Weather Analysis Center at Suitland, Md.

FAA has earmarked $6 million in FY 1960 for the project, which is officially known as AF Project Support System S433L.

Working with United will be Philco, Travelers Insurance, Tele-Dynamics, Western Union, Dunlap & Assoc., Hycon Eastern, Inc. and Technical Operations, Inc.

Airborne Radar a Must, FAA Rule Now Proposes

As an apparent aftermath of Capital Airlines' loss of a Viscount turboprop in a severe thunderstorm over Baltimore in May, FAA Administrator E. R. Quesada is proposing mandatory installation of airborne radar in all T-category aircraft.

The proposal sets October 8 as the deadline for comment to pave the way for formal rule-making within a year. Compliance within six months of the final rule is suggested.

If adopted, all airline aircraft with the exception of the DC-3 and Lockheed Lodestar would be operated under parts 40, 41 and 42 of Civil Air Regulations. Here is the list:

Boeing 377, 720 and 707; **Convair** 240, 340, 440 and 880; **Curtiss** C-46/-CW-20T; **Douglas** DC-4, DC-6 (all), DC-7 (all), DC-8; **Fairchild** F-27; **Lockheed** 049, 749, 1049, 1649 and Electra; **Martin** 202A and 404; **Vickers** 745 and 810.

How many aircraft are now equipped? Air Transport Association estimates about 50%. Applying this to the non-DC-3 types in operation (*AIRLIFT*, May, p. 79) this adds up to about 750.

Among the radar producers, at least one manufacturer (Bendix Radio) is already planning some step-up in production to meet the new demand. Bendix, along with RCA has garnered the lion's share of airborne radar sales in the three short years of its existence. A third manufacturer, Collins Radio, has sold equipment to Delta Air Lines and presumably will be out to fatten its customer list as a result of the FAA proposed order.

Immediate industry reaction to the FAA step was that most airlines would go along with the requirement, but that most concern would hinge about the grace period allowed for installation.

ATCA on the Move

Air Traffic Control Assn. has moved to new headquarters at 528 Barr Bldg., 910 17th St., Washington 6, D.C. Phone: Republic 7-2660.

This announcement appears as a matter of record only.

NEW ISSUE

June 30, 1959

$9,429,000

Airborne Carriers, Inc.

First and Second Mortgage Notes

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Relief globe by Panoramic Studios

In a record-breaking flight from Seattle to Rome — 5,830 miles, nonstop — the Boeing 707 Intercontinental demonstrated its prowess as the world's newest, longest-range jetliner. On its return flight, the 707 Intercontinental left London at 3:18 P.M. London time, arrived in Seattle at 3:56 P.M. Seattle time the same afternoon. This great, new Boeing jetliner goes into commercial service later this year, bringing unprecedented range, speed and comfort advantages to the airline routes of the world.

These airlines have ordered 707 and shorter-range 720 jetliners (asterisks indicate Intercontinental purchasers):
*AIR FRANCE • *AIR INDIA • AMERICAN • *B.O.A.C. • BRANIFF • CONTINENTAL • CUBANA • IRISH • *LUFTHANSA
*PAN AMERICAN • QANTAS • *SABENA • *SOUTH AFRICAN • TWA • UNITED • *VARIG • *Also* MATS

BOEING 707 Intercontinental

all in one down-time!

PacAero converts Convairs to Allison prop-jets and *completes* the modernization

While your Convair 340 or 440 is undergoing conversion to the G.M. Allison prop-jet Super Convair at PacAero Engineering Corp., you can have the entire airplane *modernized within the same down-time.* Refurbish the interior. Have that major overhaul. Get radar installed. And much more. Only at PacAero is it possible to get this unusual service... and from Convair-conscious specialists.

PacAero is the exclusive source for converting Convairs to Allison 501-D13 prop-jets. This is a result of joint design and development planning between General Motors-Allison and PacAero with the direct cooperation of Convair.

Many important changes are included in the conversion, such as modifications of the nacelle, fuel system, heating, controls, empennage, and other elements. What better time to complete the modernization of your Convair, especially when the modernizing will actually cost *less* when done at the same time as the engine conversion.

All PacAero materials and workmanship are warranted and certified. And PacAero engineers and technicians are acknowledged to be among the finest in the Aviation Industry. When you bring your Convair to PacAero for the Allison Conversion, consider the important advantages to having these done at the same time:

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Fairchild Symposium reveals

What to Look for in Switch to Turbines

Buyers of turbine-powered business aircraft can expect their share of transition problems, but it's a lot easier switching to turbines than it would be to change from jets to piston engine airplanes.

This was the theme brought out time and again at the Turbine Powered Business Aircraft Symposium held recently by the Fairchild Airplane and Engine Corp. Nearly 50 representatives of the nation's largest business fleet operators converged on Fairchild's Hagerstown, Md. plant for a two-day indoctrination on the impact of jet and turboprop airplanes on the business flying field.

The program was keyed to a "soft sell," and while guests were kept mindful that Fairchild is most definitely in the executive transport field with the F-27; other airplanes were liberally and fairly discussed.

Pilot transition described

FAA safety agent W. D. Crawford underlined the problems of pilot transition, saying that the pilot's main concern will be new terminology. Turbine engines require a different jargon from the piston counterparts. In jets, for example, the term "trim" may apply to the fuel condition as well as the flight controls.

Crawford pointed out that turbine airplanes must be operated in strict accordance with the manual, and there can be no tolerance of "seat of the pants" techniques formerly used.

Main topic of interest to operators is maintenance of the new aircraft. J. T. Childs, Capital Airlines maintenance supervisor on loan to U.S. Steel, gave a run-down on the steel company's record over the past two years in flying its three Viscounts.

Childs said the reliability of the Dart engine has far exceeded the company's piston engine record. U.S. Steel has not had a single turbine engine failure in nearly 5,000 hrs. of operation. Only three unscheduled removals have been made, two for inspection and replacement of a bearing bolt, and one for low oil pressure indication.

The progressive system of maintenance adopted from Capital is one big reason for U.S. Steel's record, Childs said. The biggest maintenance problem for U.S. Steel has been the myriad of minor difficulties resulting from the complexity of turbine equipment. Igniters rate high on the trouble list, Childs said, but even these present fewer problems than piston engine spark plugs.

U.S. Steel changes engines in the Viscount in about 24 man-hours, using three men.

Childs advised potential turbine customers to make sure their mechanics were properly trained on the airplane before its delivery. The pressurization system is something not too many corporate mechanics are familiar with, and requires at least two weeks of intensive schooling.

Some operators were concerned about the amount of new shop tools required for the British fitting sizes, but Childs said a complete set of Dart tools can be obtained from Snap-On for less than $100.

One recent F-27 customer told operators he planned to buy three engines for his airplane. Each engine will be run 400 hrs. and then removed and stored. In this way, the airplane will not be laid up at overhaul time, since no two of the engines will require overhaul at the same time.

Present overhaul time of Capital Airlines' Darts is 2,100 hrs. and still rising. Rolls Royce representative Ted Wayne states that the Dart now has an unscheduled removal rate of only 0.312 per 1,000 engine hours, and is improving constantly.

Wayne said many Darts have parts with more than 7,000 hrs. operating time, and are still in use. He also pointed out that line maintenance of the Dart is less than 10 man-minutes per engine hour, and the cost of consumable spares is approximately 15¢ per engine hour.

A panel composed of Fairchild's engineering and sales personnel explained present operating experience of the F-27. Sales representative Phil Mack said executive F-27s have accumulated a total of 2,100 hrs. to date. There are presently 13 corporate airplanes in service, with a total of 22 on order.

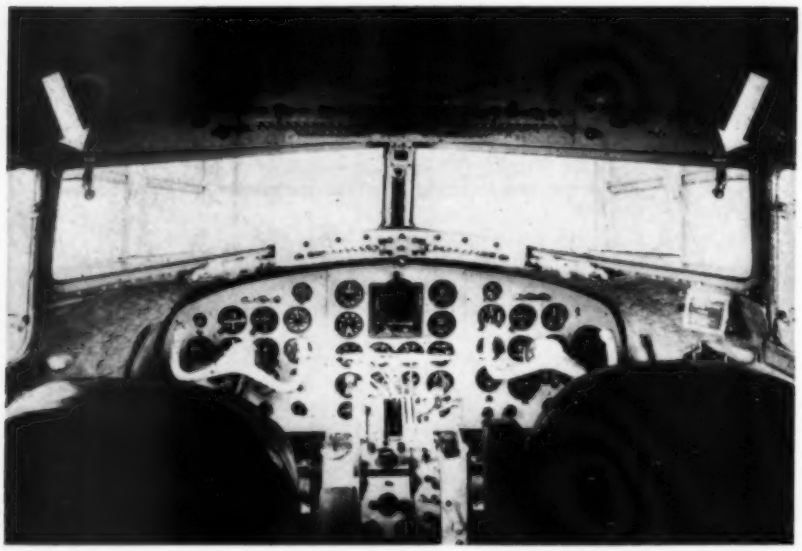
Experience with F-27

Utilization of the F-27 has run an average of 20 hrs. per week, and one airplane has a total of 500 hrs.

Fairchild figures show that the average F-27 customer spends $12,000 for initial spares, but the range has been from a high of $76,000 to a low of $36. Location of the operator relative to a spares source is the key factor in initial spares purchasing.

Fairchild is offering its customers complete maintenance service on the F-27. A fixed price of $1,150 is charged for a 100 hr. inspection, including warranty.

At Fairchild symposium, panel discussion of pilot problems in turboprop aircraft is led by Bill Riley (left), U.S. Steel chief pilot. Other members are (left to right) Bob Nagel, pilot of Westinghouse Electric's F-27, Bill Duke, Reynolds Metals F-27 pilot, and W. D. Crawford, FAA safety agent.



Heated Sierracote windshield installed in DC-3 is energized by connectors in upper corner (arrows). Panels for a number of smaller business aircraft are under development.

Hot Windshield for Transport Aircraft

The Sierracin Corp. of Burbank, Calif. is working with Beech, Cessna, and Aero Design on development of an electrically-heated windshield to end fogging and icing problems in this smaller category of business aircraft.

Sierracin's system, already in use on DC-3s, Lodestars, and several types of military aircraft, consists of a transparent coating applied to the windshield and heated by electric leads. The coating is called Sierracote and is a specially-developed metallic deposit of low resistance.

Tests are now under way for installations on the Cessna 310, Aero Commander, and Beech Super 18. The Army is working on a system for the Twin Bonanza, and Beech is studying a design for the Model 50 Travel Air.

The Sierracin system is effective in combatting ice and mist and has the added advantage of retaining all the heat in the windshield itself, thus eliminating cockpit turbulence or uncomfortable temperatures.

In one recent case, an oil company DC-3 equipped with Sierracote was forced to land because of ice accumulating on the wings. Sierracin says that the windshield remained clear, allowing the pilot to land without difficulty. Also, more than 700 hrs. have been logged by Bethlehem Steel in a Sierracote-treated Lodestar without any visible accumulation.

The Sierracote panels weigh no more than the normal windshield and are completely interchangeable. The coating also offers greater impact protection than the normal plastic windshield, which gives added safety from bird collision damage.

New Approval from FAA On Geisse Cross-wind Gear

The Geisse safety gear has gained FAA approval for installation on Cessna 172s and 175s, making it the first cross-wind gear certified for use on tricycle gear airplanes.

The gear, designed by GeissGears, Inc. of Washington, D.C., is already approved for the Cessna 140, 170, and 180. It is available as a factory installed item on the Beech Model E18.

Unlike other cross-wind gears, the Geisse unit allows the wheels to caster in only one direction—outwards. In a cross wind the downwind wheel toes out, remaining parallel to the runway, while the airplane crabs into the wind.

The gear consists of two leaf springs in a "V" arrangement joined by a one-inch bolt. The bolt serves as a caster pin and has shimmy damper and centering springs.

The gear sells for $240 per set for any of the approved airplanes.

Allison Sells First Three Super Convair Conversions

Allison has announced the sale of its first three turboprop conversions of the Convair 440, called the "Super Convair."

No. 1 airplane is at PacAero Engineering Corp. in Santa Monica, Calif. for finishing touches. PacAero is responsible for all engineering tooling, and conversion on both the 340 and 440 versions and will handle FAA certification. First flight of the number one ship is slated for early fall. It will be delivered to Allison for executive transport use.

The second airplane is scheduled to go to another General Motors division, AC Spark Plug. AC plans to use the airplane to shuttle personnel between the Ballistic Missile Division near Los Angeles, Cape Canaveral, and MIT. Union Oil of California will take delivery on the third airplane.

Engines in the Super Convair are the same Allison 501s used in the Electra with Aeroproducts propellers.

First Operating Costs on North American Sabreliner

North American Aviation, though still not making an all-out push to sell the four to eight passenger T-39 Sabreliner as an executive transport, is accumulating operating cost figures for the airplane.

North American has found the Sabreliner agency overhaul cost to be $24 for each hour flown. This figure includes engine overhaul, which amounts to $19.76, hydraulic and miscellaneous at $2.33, and electronics maintenance at $1.55.

Base maintenance and inspections total approximately $16 per flying hour, which breaks down to $5.29 at the flight line, $3.68 for field maintenance, $2.42 for inspections, and $5.00 for materials.

Sum total of the overhaul agency and base maintenance figures brings operating costs to approximately $40.

Although the present Sabreliner uses two General Electric J85s, the final version will feature two Pratt & Whitney JT12s. NAA figures fuel costs for the JT12 version will take about $29.35 per hour flying at the design altitude of 40,000 ft. and Mach 0.76. Of this cost, $29 goes for fuel, and $0.35 for oil.

PAC Lays Cash on Gulfstream's Success

Pacific Airmotive Corp., one of three U.S. distributors of the Grumman Gulfstream, reserved 14 delivery positions in the initial production of the new turboprop business transport.

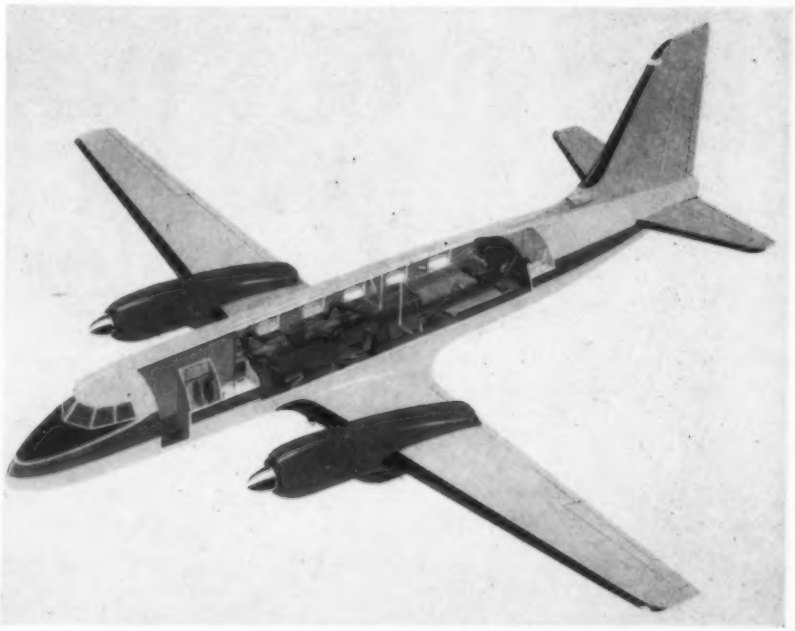
Customers put up the required $10,000 deposit per airplane for 11. PAC put up its own money for the other three. It has no fears that the speculation may involve any risk. "This is a good airplane," said John W. Myers, PAC president.

PAC sold the first Gulfstream to Sinclair Refining Co. This airplane currently is at PacAero Engineering Corp.'s plant in Santa Monica, where installation of a custom interior and electronic equipment is under way. It is scheduled for delivery on August 25.

A second Gulfstream for Harold S. Vanderbilt is in work at PacAero, which is a wholly owned subsidiary of PAC, with delivery scheduled for September 2.

PAC anticipates a quickening of interest among prospective buyers of the Gulfstream from the fact that Grumman is now flying a demonstrator. First to check out on it when it arrived on the West Coast was PAC President Myers, himself a former test pilot and still a flying enthusiast.

"I found the Gulfstream a delightful airplane to fly," said Myers. "It has excellent stability and control characteristics. The control force gradients are very pleasant due to a spring tab system that is in operation during the entire flight regime, except that the rudder spring tab locks out when the flaps are retracted. This latter is a novel and unique means of providing a comfortable rudder force under asymmetrical power conditions in low speed flight, while at the same time providing enough force under high speed conditions to prevent any possibility of inadvertent excessive yaw."



Cutaway shows custom interior designed by PacAero Engineering Corp., for Grumman Gulfstream. Company currently is installing interiors in airplanes owned by Sinclair Refining Co. and Harold G. Vanderbilt.

Grumman pilots Jack Schabel (left), and John Jeffries (middle) with PAC president John W. Myers.

The Grumman turboprop is a $1 million package. Grumman's price for the basic airplane is $845,000. It markets the plane, without interior furnishings or equipment, through its distributors. In addition to PAC, these are: Atlantic Aviation, Wilmington, Del.; Southwest Airmotive, Dallas; and Timmins Aviation of Montreal.

Electronics, including autopilot, runs from $96,000 to $100,000 and a typical interior adds another $50,000. Very de luxe interiors, of course, will cost considerably more.

The Gulfstream is powered by two Rolls-Royce RDa7-2 turboprop engines delivering 2105 eshp each for four-bladed Rotol propellers. PAC points out that it is the only maintenance company licensed by Rolls-Royce to overhaul Dart engines in the U.S., so it has the capability to sell the Gulfstream and then service and overhaul both the aircraft and the engines.

Amex Credit Card OKs Charging FBO Services

American Express has extended its credit card service to the realm of fixed base operations.

Holders of American Express credit cards may charge gasoline, oil, maintenance, parts, charter, and other services at 102 airports in 31 states throughout the country. Billing will be made on the user's regular Amex monthly statement.

First aircraft service to join the credit card was Newark Air Service at Newark Airport.

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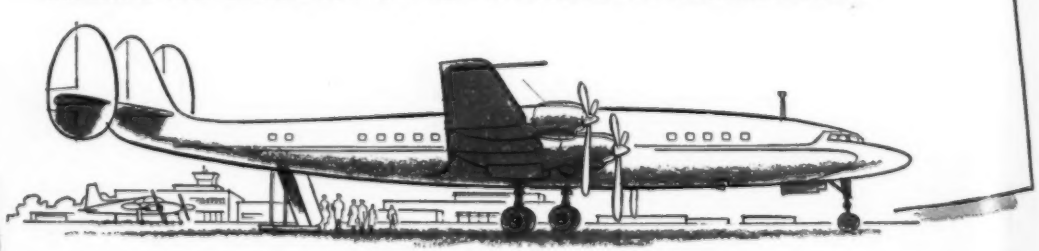

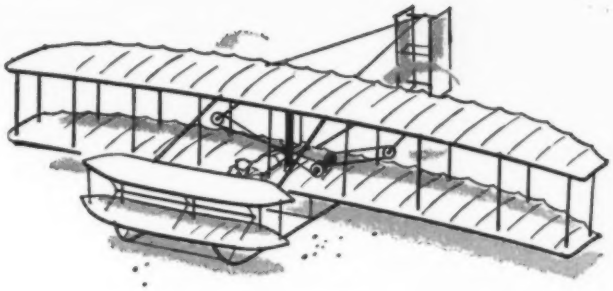

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Ouch! Those High Limo Rates

Passenger pays anywhere from 5.6¢ to $1.05 per mile for airport transport.

By JOSEPH S. MURPHY

THE AIR FARE from Denver to Farmington, N.Mex. is a pretty stable thing—$23.20 plus tax or about 8¢ per mile. But once the passenger emerges from Farmington's airport terminal, he runs into something vastly different in transportation rates.

The one-mile airport-to-downtown cab ride costs him $1.05! At Cheyenne, Wyo. it's almost the same story, $1 a mile. There's only a slightly better bargain at Liberal, Kan. or Rocky Mount, N.C. where a one-mile trip costs 75¢.

But these are just the real big takers. There are others. At Kansas City and Vero Beach, Fla. the passenger pays to the tune of 50¢ per mile; Bismarck, N.D. 37.5¢; Bridgeport, Conn., Phoenix and Winston-Salem, N.C. are all 10¢ above the average of 25.9¢ per mile charged by 51 cities with airports one to five miles out.

153 Points Surveyed

A special *AIRLIFT* survey of limo charges at some 153 U.S. cities shows the passenger gets his best buy for close-in airports at Orlando, Fla. (75¢ for a five-mile jaunt) and at Reading, Pa., same fee, same distance.

Best evidence of the "charge as you please" approach that prevails in limo fares is the variety of charges for a five-mile trip. There are six different rates ranging from 75¢ to $1.50.

The short-haul limo services aren't the only offenders. In the 5-to-10 mile group, Grand Rapids hits passengers with a 25¢ per mile rate compared with only 16.4¢ for some 62 cities that fall in this category. Among the better rates surprisingly is Miami's, only 85¢ for seven miles or 12.1¢ per mile.

Obviously, as the distance grows the rates come down. This is true at most cities in the 11-to-15 mile group except Clearwater, Fla. The rate there is 22.7¢ a mile (12 miles for $2.75) higher than the average for 5-to-10 mile airports *by seven cents a mile*. Placed in its own distance category, the limo service to the Florida city takes just about double the average fare of 11.8¢ per mile for 28 cities.

To get the best limo buy, a passenger should visit Douglas, Ariz. Only 75¢ for 11 miles—one mile shorter and $2.00 cheaper than Clearwater!

In the "over 16 miles" group, Detroit's Willow Run takes the honors as the best buy at 5.6¢ a mile for the longest airport-to-downtown trip in the U.S. (31 miles). High-rate charger in this group is Cheboygan, Mich. at 12.4¢ a mile for 20 miles, 3.3¢ above the 9.1¢ average for a dozen cities.

For the most part, distance determines the rates and the averages follow an expected trend from 25.9¢ a mile for 1-5 miles; 16.4¢ for 5-10 miles; 11.8¢ for 10-15 miles to 9.1¢ for over 15 miles.

But why the "big" chargers? The answer can't be service. In the 1-to-5 mile group there are some 14 airports that beat the 30¢ per mile charged at Washington, D.C.'s Airport Transport, Inc. yet a better all-around limo operation in the U.S. is hard to find.

It can't be service in New York either, where air passengers from Newark, Idlewild or LaGuardia ride the identical Carey limousines and pay 11.2¢, 8.1¢ and 14.2¢ a mile respectively.

Another explanation might be volume, but it can't be that either. Phoenix charges $1.25 for the same trip one travels in Bowling Green, Ky. for only 75¢ and there's no comparison between the two in traffic.

The only apparent answer is a "charge as you please" approach with no real effort by airlines, airport managements or municipalities to curb the offenders.

And limo operations, at best only "fair" in the past in all-around service, are becoming a big weak spot in the comfort of the downtown-to-downtown trip of the air passenger.

It is not at all out of the question to arrive at New York in mid-winter after a comfortable flight in a new turboprop, then "freeze" all the way to the East Side Terminal in a coach with a heating system operated for driver comfort.

Apparently it is just as routine to ride an Airfield Service coach to downtown Hartford and be asked to carry your own luggage a block and a half from the new Statler Hotel despite the fact that your hotel isn't aware that it no longer has direct limo service.

These are but two examples of the trend among limo services to treat the air passenger as anything but a wanted customer. The list of mishandlings no doubt would fill a book. And with the new era of speed and comfort inherent in the jets, their impact on the passenger and air transport will be greater than ever.

Who Charges What Limo Rates

Airport-to-City Distance 1 to 5 Miles

City	Distance (mi.)	Charge	Cost per Mile
Amarillo	3.5	$.75	$.21
Austin	4	1.00	.25
Allentown	5	1.00	.20
Birmingham	4.5	1.25	.27
Bridgeport	4.5	1.60	.35
Billings	2	1.00	.50
Bismarck	2	.75	.375
Butte	5	1.50	.30
Bethlehem	5	1.00	.20
Boston	3	1.00	.33
Bowling Green	3.5	.75	.21
Brownsville	5	1.00	.20
Burlington	3.5	.75	.21
Charleston, W.Va.	4	.75	.18
Cheyenne, Wyo.	1	1.00	1.00
Corpus Christi	4.5	1.00	.22
Daytona Beach	3.5	.75	.21
Des Moines	4.5	1.10	.24
Elkins, W.Va.	3	.90	.30
Fargo	3	1.00	.33
Farmington, N.Mex.	1	1.05	1.05
Florence	4	.75	.18
Ft. Smith	4.5	.75	.21
Flint	5	1.25	.25
Gainesville, Ga.	4	1.00	.25
Great Falls	5	1.00	.20
Helena, Mont.	3	1.00	.33
Huntsville	4.5	1.35	.30
Harrisburg	5	1.00	.20
Hot Springs, Ark.	3	.85	.28
Jackson	4.5	1.00	.22
Kansas City, Mo.	1.5	.75	.50
Liberal, Kan.	1	.75	.75
Little Rock	3	.70	.23
Louisville	5	1.00	.20
Lansing	5	1.00	.20
Lubbock	5	1.10	.22
Orlando	5	.75	.15
Omaha	5	.85	.17
Phoenix	3.5	1.25	.35
Rocky Mount, N.C.	1	.75	.75
Rochester, N.Y.	4	1.00	.25
Rochester, Minn.	2	.60	.30
Reading	5	.75	.15

City	Distance (mi.)	Charge	Cost per Mile
Springfield, Ill.	4	$1.00	$ .25
Tampa	5	1.25	.25
Tallahassee	4	1.00	.25
Vero Beach	1	.50	.50
Washington, D.C.	4	1.20	.30
Winston-Salem	3	1.05	.35
Yakima	4	.75	.18
Totals	188.5	$48.85	$25.9
5 to 10 Miles			
Atlanta	9	1.35	.15
Augusta	10	1.60	.16
Albany	9	1.15	.127
Baltimore	8	1.35	.168
Baton Rouge	8	1.25	.15
Brunswick	8	1.25	.15
Buffalo	9	1.35	.17
Canton	8.5	1.65	.19
Columbus, O.	9	1.40	.15
Charlotte, N.C.	6	1.15	.19
Chattanooga	9.5	1.35	.14
Columbia, S.C.	7	1.10	.15
Columbus, Ga.	6	1.00	.16
Camden	9	1.75	.19
Clarksburg	6	.75	.125
Dallas	7	1.00	.143
Denver	6.5	1.00	.15
El Paso	7	1.05	.15
Erie	7	1.00	.143
Florence, S.C.	8	1.00	.125
Ft. Wayne	9	1.25	.139
Grand Rapids	5.25	1.35	.258
Houston	10	1.25	.125
High Point	10	2.00	.20
Indianapolis	8	1.25	.156
Jacksonville	8	1.45	.18
Lexington	6	1.10	.183
Lincoln	7	1.15	.164
Memphis	9.5	1.40	.147
Miami	7	.85	.121
Milwaukee	6	1.05	.168
Minneapolis	9	1.25	.139
Madison	6	1.00	.166
Montgomery	9	1.25	.139
Nashville	8.5	1.35	.159
New York-LGA	9.5	1.35	.142
Norfolk	7	1.15	.164
Oklahoma City	9	1.50	.167
Philadelphia	7	1.35	.19
Portland, Ore.	9	1.50	.166
Providence	6.5	1.50	.23
Peoria	5.5	1.15	.20
Parkersburg	8	1.00	.125
Richmond	7.5	1.30	.17
Roanoke	5.5	1.10	.20
St. Paul	10	1.50	.15
Spokane	7	1.25	.18
San Antonio	8.5	1.25	.14
Savannah	10	1.50	.15
Scranton	8	1.25	.17
Syracuse	6	1.25	.208
Shreveport	8.5	1.50	.17
Springfield, Mo.	7	1.00	.14
St. Joseph	6	1.35	.225
Saginaw	10	2.00	.20
Tulsa	7	1.25	.17
Troy, N.Y.	10	1.75	.175
Tucson	7.5	1.25	.16
Wilmington	6.5	1.25	.19
W. Palm Beach	5.5	1.00	.18
Waco	7.5	1.25	.16
Wichita	7	1.25	.18
Totals	482.25	$79.20	$16.4
10 to 15 Miles			
Asheville	14	1.50	.101
Ashland	12	2.00	.167
Atlantic City	12	1.40	.116
Clearwater	12	2.75	.227
Cincinnati	12	1.35	.112
Cleveland	12	1.20	.10
Charleston, S.C.	14	1.40	.10
Chicago-Midway	12	1.45	.12
Corning, N.Y.	12	1.50	.125
Durham	15	1.50	.10
Dayton	12.5	1.40	.11
Douglas, Ariz.	11	.75	.068
Elmira	12	1.50	.125
Hartford	14	1.40	.10
Hendersonville	14	2.50	.178
Knoxville	13.5	1.35	.10
Los Angeles	14	1.20	.086
Mobile	14	1.65	.117
New Orleans	11	1.25	.113
New York (Newark)	12	1.35	.112
Raleigh	13.5	1.80	.13
St. Louis	15	$1.50	$ .10
St. Petersburg	12	1.50	.125
San Francisco	13	1.20	.092
Seattle	13.3	1.50	.113
Sioux City	11.5	1.40	.122
Springfield, Mass.	14	1.75	.124
Toledo	14	1.75	.124
Totals	349.3	$41.45	$11.8
16 Miles and Over			
Akron	16	1.85	.11
Bisbee	22	2.30	.104
Bristol	16	1.50	.094
Cheboygan, Mich.	20	2.50	.124
Chicago O'Hare	23	2.25	.093
Detroit			
Metropolitan	20	1.75	.087
Willow Run	31	1.75	.056
Easton	18	1.25	.07
Ft. Worth	19	1.75	.09
New York			
Idlewild	16.5	1.35	.081
Pittsburgh	16	1.35	.084
Tacoma	21	2.25	.106
Totals	238.5	$21.85	$9.1

Source: Airline tables in Official Airline Guide.

Quesada Makes it Clear, Safety to Dictate Aid

FAA Administrator E. R. Quesada left no doubts that safety items will receive top consideration in airport aid awards. He said he will approve no federal funds for terminal construction "if it means that a safety requirement must remain unsatisfied . . . It will be my policy . . . to rule out any terminal building construction which is not *clearly essential* to the safety, convenience or comfort of persons using airports."

Quesada also said every effort will be made to telescope FAA airport aid planning so the approved programs for fiscal 1960, which started July 1, and for fiscal 1961 will be released within the next six months. He will try to announce the 1960 plan by next November and the 1961 program by Jan. 1, 1960 "or as soon thereafter as possible."

In approving the two-year extension of the Federal Airport Act at a $63 million annual level, President Eisenhower repeated the Administration's opposition to federal aid for any construction not directly related to safety. He praised the lawmakers for giving the FAA Administrator broad discretion in administering the funds.

Asphalt Damages a Jet

First known instance of jet damage from taxiway asphalt blasted loose by a jet occurred recently during taxiing at Boston's Logan International Airport.

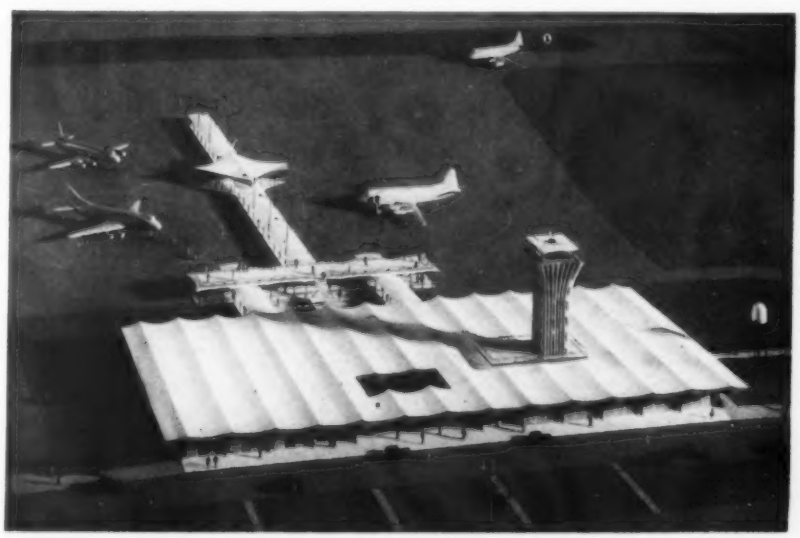
The 707, an American Airlines aircraft, sustained damage to left horizontal stabilizer and elevator. One hole in the stabilizer measured about 9 x 18 in.

The damage was unknown to the crew at time of occurrence and was repaired on flight termination at Los Angeles.

How Much Transients Spend

Tucson, Ariz. Municipal Airport has found out some interesting facts about the spending habits of transient aircraft operators.

A ten-year survey of transient traffic has revealed that the average pilot passing through Tucson spends $29.30 on fuel and services. Total amount spent in the Tucson area by transient aircraft operators comes to $1,500 per day.



Austin terminal design a prizewinner. Proposed new terminal due to get underway recently at Austin, Tex. Robert Mueller Municipal Airport will cost $935,000 and won architectural award for its designers, Fehr & Granger, Austin. Heading project is city's Director of Aviation, Vance E. Murphy.

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A SUPER CONVAIR

with proven

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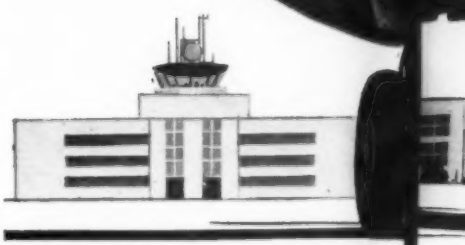


The Convair with its many million hours of dependable airline service becomes the *Super* Convair when it is powered by the proven General Motors power package of Allison Prop-Jet engines and Aeroproducts propellers.

This is the power team now accumulating nearly 100,000 hours of flight experience each month in the Lockheed Electra and C-130 Hercules . . . with the rate increasing rapidly as new aircraft go into service. It will already have 1,500,000 hours of military and commercial flight time when the first Super Convair is ready for delivery late this year.

Whether it is used in trunk or local airline service—or as a corporate aircraft—the Allison Super Convair provides experienced dependability. And this is in addition to performance capabilities which will carry you faster, farther, higher and with greater comfort than the aircraft you are now using.

With Allison Prop-Jet power in your Super Convair you will have other advantages. A spare parts and overhaul program is in operation. This includes a Unit Exchange plan which means you can greatly reduce your inventory requirement for spare engines, propellers and spare parts. It's the same plan already used by a number of the 15 airlines now or soon to be operating the Allison-powered Electra in world-wide service.

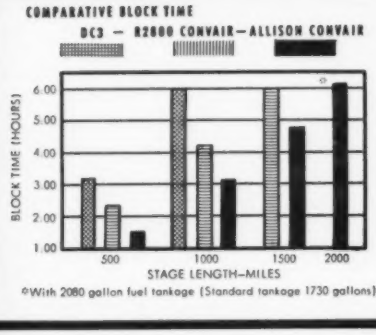
All this applies whether you are concerned with airline management or own and use aircraft as a necessary part of your own business. But to be more specific—

FOR THE CORPORATE AIRCRAFT OPERATOR...

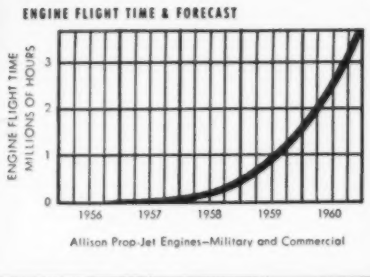
With an Allison Prop-Jet Super Convair, you will have an abundance of dependable power for quick, short field take-offs and rapid climb above the weather where the air is smoother. You'll fly in pressurized comfort and you won't experience the noisy pounding vibration which marks piston engine aircraft. And most importantly you will save time – giving you more hours in the day, adding up to more days in the year to do your work or relax. You also gain time by having ample room and comfortable surroundings to do more work or reading en route. You can select the interior configuration which best suits your taste and convenience.

ALLISON PROP-JET

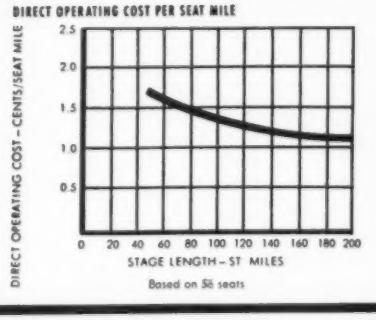
CHECK THE CHARTS... there's profit in Allison Prop-Jet Super Convairs



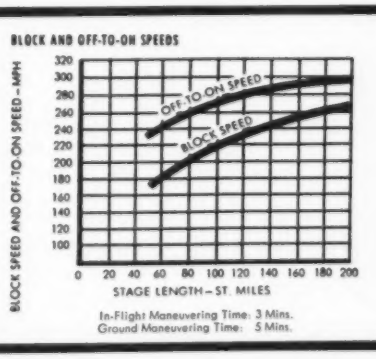
*With 2080 gallon fuel tankage (Standard tankage 1730 gallons)



Allison Prop-Jet Engines—Military and Commercial



Based on 56 seats



In-Flight Maneuvering Time: 3 Mins.
Ground Maneuvering Time: 5 Mins.

FOR AIRLINE MANAGEMENT...

The Allison Prop-Jet Super Convair can far outearn comparable aircraft—old or new.

There's seating capacity for up to 58 passengers—speed and comfort to attract more and more revenue—ability to cover present routes with fewer planes or more routes with the same number of planes you operate now.

And Allison's unique Unit Exchange plan for engines and propellers greatly reduces your inventory requirements. Spare engines, propellers and spare components can be shipped on demand from our docks direct to you. When we take care of the overhaul, your only parts inventory requirement is for line maintenance.

FOR ANY AIRCRAFT OPERATOR...

Check the charts which are of greatest interest to you. Then get *all* the facts on the Allison Prop-Jet Super Convair, particularly the details on our entire engine and propeller support program, including the Unit Exchange plan. Write on your letterhead to:

Mr. William O. Watson
Manager, Sales & Contracts Dept. 4A.
Aircraft Engines Operations
Allison Division
General Motors Corporation
Indianapolis 6, Indiana

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GM
ALLISON PROP JET ENGINES
AEROPRODUCTS PROPELLERS
JET POWER

By FRED S. HUNTER

The day after Douglas made public the news that it was offering a little DC-8—with turbofan engines and called the DC-9—to the airlines for delivery starting in 1963, Boeing put 20 more engineers to work on the 727. The Boeing-Douglas competition is running in high blower these days.

Boeing has been drawing lines on paper for a turbofan 727 for about the same length of time Douglas has been working on the DC-9, but the big problem up in Seattle has been: How many engines? Douglas has favored four engines from the start, but at Boeing designers, marketing and financial people, sales executives and others in management have been batting back and forth on two, three and four-engine configurations trying to arrive at the best compromise on power for a money-making short and medium-range transport.

Engines Prove Reliability

Airlines, until recently, displayed resistance to anything less than four engines for a jet transport. But the reliability demonstrated by the Pratt & Whitney JT3 turbojet engines in the Boeing 707s now flying is bringing about a change in the thinking. A lot of people now expect to see Boeing settle on a twin-engine job, perhaps a little smaller than the DC-9, on the theory that the operating economies would be more attractive to an airline with an eye for profits. Moreover, such a two-engine plane would make use of P&W's JT3D-1, which also will fit in the Boeing 707 and the 720, as witnessed by American Airlines' announcement of its plans to convert, and this would give the manufacturer the strong selling point of standardization on one engine type for customers flying both big and little Boeings. But more important still, the JT3D-1 will be in production in 1960 whereas a smaller-scale turbofan to fit into a four-engine design, such as P&W's JFT10A-1, won't be ready until 1963. The Boeing board meets in Seattle the first week in August and this should signal the green light for the 727.

Battle of Electras Looming

We have a feeling that exciting times are in store on the San Diego-Los Angeles-San Francisco route come Christmas time. Pacific Southwest Airlines is programming the start of turboprop Electra service for December 23, at the height of the holiday season. This will bring the latest type turbine equipment into the cut-rate market. It will also set Electra against Electra in competition with Western Air Lines.

PSA is a stronger force in the California market than most people realize. Even now, flying unpressurized DC-4s, origin and destination studies indicate this intrastate carrier is carrying between 25 and 30% of the passengers flying between the cities of San Diego, Los Angeles and San Francisco. PSA's appeal, of course, is price. Its tariffs are even less than the coach fares of United and Western. But it also happens to be a well-operated airline. It does a good job of making schedule and passengers say its employes present both an efficient and friendly atmosphere.

Heavy Weekend Traffic

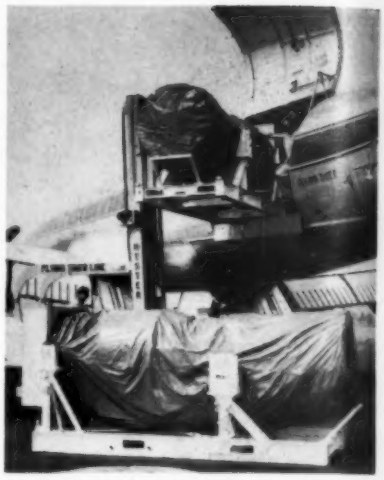
It's on weekends that PSA makes hay. With its present DC-4s, it flies a regular pattern of five daily round-trips between San Diego and San Francisco via Los Angeles (or Burbank). On Fridays the number of flight schedules doubles to 10 in each direction and on Sundays it goes to 12. The pattern is altered to provide San Diego-San Francisco nonstops that overfly Los Angeles and other flights that turn around at Los Angeles. When it starts operating Electras, PSA plans a daily utilization of about eight hours a day with the weekend schedule upped to nearly 16 hours on Friday, 12 hours on Saturday, 16 hours again on Sunday.

Although PSA itself placed the original purchase order for three Electras, it has since arranged a leasing deal with the Hilton interests. A separate corporation bearing the most appropriate name of Electrahilt, Inc., has been formed to hold title to the aircraft. Barron Hilton, a son of hotelman Conrad Hilton, is president. In keeping with the reduced rate fares, the PSA Electras will have high-density interiors. They'll carry 98 passengers. This compares with 66, plus six in the lounge, for WAL's standard fare Electras.

Saving On Jet Shipments

Douglas has developed a jet engine shipping buck (see photo) to reduce the cost of airlifting engines for its DC-8s. The buck weighs about 700 pounds compared to nearly 4,000 pounds for the conventional can container.

The first jet engine shipping buck was developed by Leo Meyers at Boeing two years ago. But like all other air-freight innovations it took time to start coming into general use. The Flying Tiger Line has moved approximately 350 engines for the Boeing 707. This represents a total of about 1.9 million pounds of traffic. Equally important to the shipper, it means a saving in tare weight of about the same amount since the cans weigh as much as the engines.



Jet engine shipping buck developed by Douglas is loaded by Flying Tiger Line.

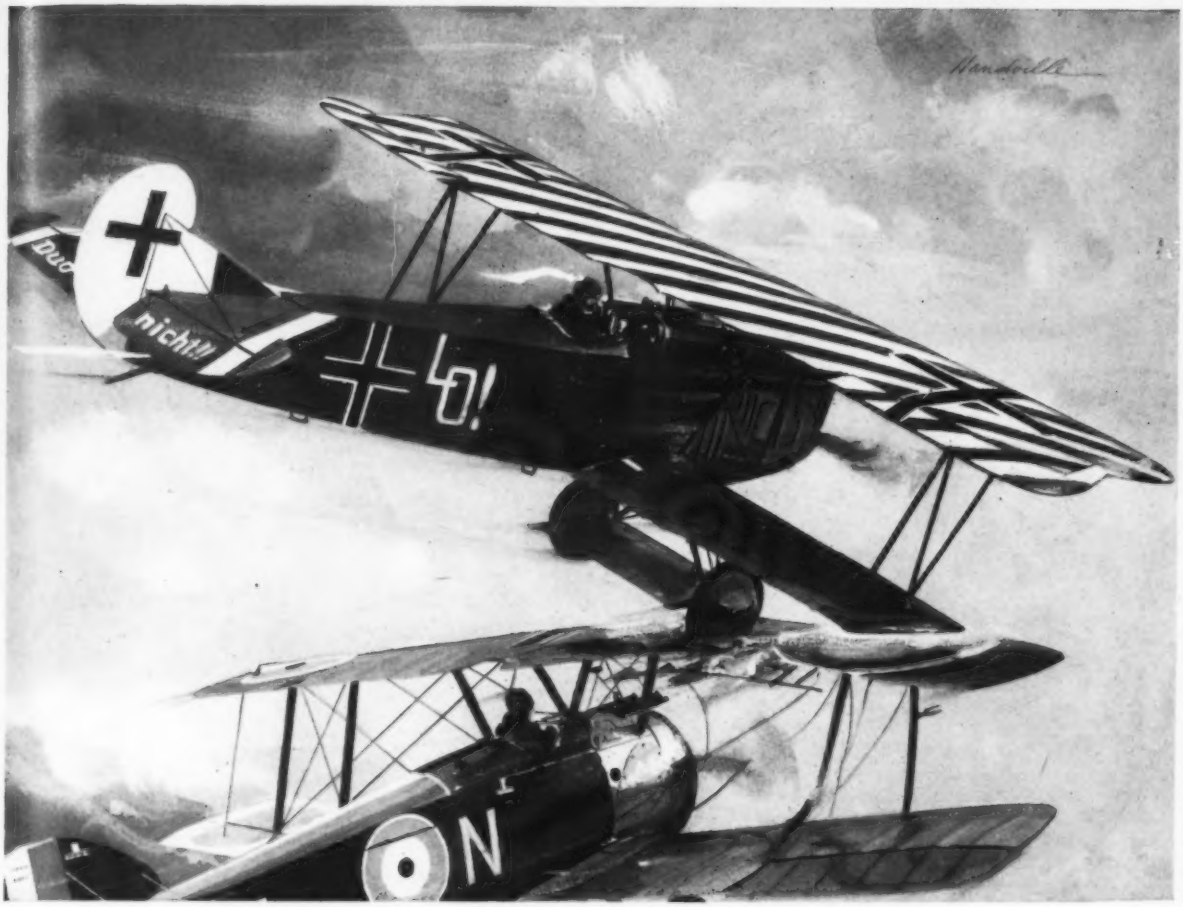
UCX Competition

When the Air Force recently conducted flight tests in the re-evaluation of the Lockheed JetStar and the McDonnell Model 119 at Edwards Air Force Base, the former was underpowered and the latter overpowered. That's because both had substitute engines. The JetStar still was flying with two Bristol/Curtiss TJ37s and the McDonnell job with four Westinghouse J34s. A big difference between these two is that the JetStar has its engines mounted aft to the fuselage and the Model 119 has them mounted in pods attached to the wing. Reports persist, incidentally, that the Air Force may buy both of these aircraft even though there would appear to be no need for a political decision in a competition such as this.

Some Jet Facts

Sound suppressor for the intercontinental Boeing 707 has only nine tubes as compared to 21 in the domestic version and is showing less thrust loss . . . Tire cost is one of the areas where jet costs have run higher than anticipated . . . Experts who guessed that the traveling public might hesitate about accepting jets right away couldn't have been more wrong.

For a 14" x 10" lithographic print, suitable for framing, write Aviation Division . . . Request Historical Series #2.



August, 1918 . . . Ernst Udet in a Fokker D-VII collides with a Sopwith Camel

Early War Birds—THE FOKKER D-VII

With the arrival of this famous airplane at the Western Front in May, 1918, the German *Staffels* obtained a fighter equal to the best Allied types. When powered with a 200 h.p. B.M.W. engine, the Fokker D-VII had a top speed near 130 m.p.h. and a service ceiling of 21,000 feet. The D-VII possessed superior flying qualities—rapid climb, fast recovery from a dive, good control at slow speeds and at high altitudes. It was said of this Fokker that it made good pilots out of novices . . . skilled pilots more expert.

Certainly, Lieutenant Ernst Udet was one of the most skillful pilots who flew Fokker D-VII's. He was one of the youngest German aces . . . and second to Baron von Richthofen with 62 accredited victories. His colorful career had many dramatic and exciting episodes. For example, Udet accidentally rammed an opponent and lived to tell about it.

On August 8, 1918, he engaged a Sopwith Camel with his D-VII. After a bit of initial "sparring," he got on the Camel's tail . . . forcing it to go lower and lower. At about 500 feet, the Camel looped. Udet followed . . . ending up on top of the Camel and crashing its upper wing with his landing gear. The Camel fluttered to the ground with a crumpled wing . . . and, though injured, the pilot survived. Udet returned to his field and managed to land in spite of a damaged landing gear with one flat tire.

Udet fought through every year of the conflict and on every front, twice being saved by a parachute (used by German, but not Allied, fliers during the closing months of the war). He had encountered most of the Allied front-line planes and fought them boldly and skillfully . . . and he came through it all.

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General Electric
CJ-805
is a pilot's engine...

reliable, responsive, and mature

Look at the General Electric CJ-805 from the pilot's viewpoint.

CJ-805 Reliability—Throughout thousands of hours of "squawk-free" operation, CJ-805s are showing their ability to meet pilot requirements—in timely starting, fast full power for take-off, prompt response to throttle changes during landing approach and reverse thrust operation.

CJ-805 Response—In an emergency aircraft "wave off" during landing, CJ-805s are less than three seconds away from full power. From ground idle to take-off throttle settings the engine produces full power in less than 6 seconds. Throttle bursts, chops, in-flight shutdowns and restarts have been consistently accomplished without difficulty in the Convair 880s, G.E.'s leased B-66 and XF4D to extreme altitudes.

CJ-805 Maturity—CJ-805 production engines, identical to those flying on CV-880s, have already demonstrated ruggedness and maturity in thousands of flight and factory test hours. Two engines have completed 2000-hour ground tests—one of these is now flying in G.E.'s leased B-66, approaching 3000 hours total time. Pilots flying CJ-805 powered aircraft will have an engine whose design and operating maturity have been fully proven.

From the pilot's viewpoint, or any other, CJ-805 power makes good sense. For more information, contact your G-E Aviation and Defense Industries sales representative or *General Electric Company, Cincinnati 15, Ohio.* 237-28

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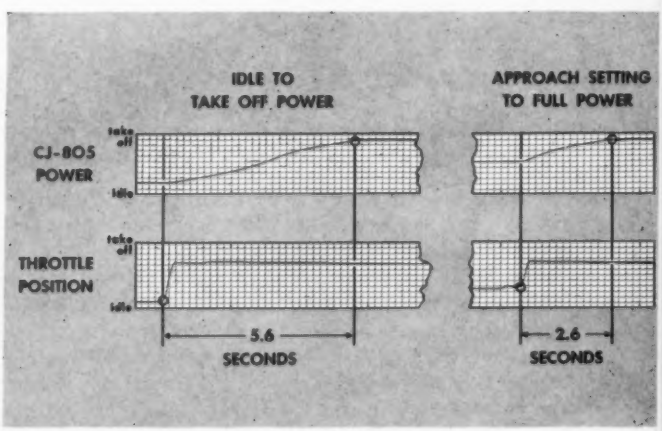
CONVAIR FLIGHT TEST PILOTS flying 880 evaluations are Don Germeraad (left) and Phil Prophett. Observed Germeraad, ". . . The G-E CJ-805 proved to me that it has power when you need it." From their point of view, the CJ-805 is a pilot's engine.



FAST RESPONSE TO THROTTLE takes CJ-805 fan engine from idle to take-off power in 5.6 seconds and from approach settings (20% power) to full power in 2.6 seconds. Brush tracings of an actual CJ-805 run document immediate, dependable response.

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By ERIC BRAMLEY

Examiner Clears EAL on Overbooking

Mistakes by an airline can lead to overbooking of flights, and the Civil Aeronautics Board can't regulate such errors out of existence, a CAB examiner has stated.

In a case of considerable importance to airline sales officials, examiner William F. Cusick found that overbooking in itself is not a violation of the Federal Aviation Act without a showing that oversales resulted. He recommended that charges against Eastern Air Lines, covering a five-week period in 1957, be dismissed. It was CAB's first overbooking case.

Evidence failed to show any unfair or deceptive practice, as had been alleged by CAB's Office of Compliance, Cusick said, adding that overbookings were largely due to human errors, and oversales which resulted were held to a minimum. EAL wasn't informed of the charges involved in time to permit it to preserve records necessary to prepare its defense, he stated.

"To insure against every possible eventuality that might stem from such things as time lag in communications, errors in teletype messages, misread charts, or a host of other possibilities, could well require that the carrier close its books for a particular flight substantially in advance of a sound load factor . . . Such insurance would be a high price to pay for the elimination of all possible error, however remote.

"While errors are not to be condoned, the Board obviously cannot regulate out of existence all human or mechanical mistakes."

Largest painted wall spectacular in the western U.S. is being used by TWA in Los Angeles to promote Boeing 707 service. Located on the corner of Figueroa and Fifth Sts., the display covers 7,000 sq. ft. of wall space. TWA logo letters are 1600 ft. tall. At the top, TWA says, is the world's largest reproduction of the 707—50 ft. across and 12 ft. deep, a little better than one-third scale.

Now It's 'Beer' Flights

Some airlines may serve champagne and other fancy drinks, but North Central Airlines is setting the pace in the beer department. Six Convair trips operating through Milwaukee, the U.S. beer capital, are serving the beverage, provided free by Pabst Brewing Co. The trips are tagged "Blue Ribbon Beer Flights" in North Central's timetable. Stewardesses report that 50% to 60% of passengers are accepting the complimentary drink.

Distribution of New Air Travel Cards Starts

About 900,000 new, streamlined air travel cards are now being issued to replace the cards that have been in use for 11 years.

The new card is plastic, with code, name, company and address in embossed letters. The old one, of heavy paper in an acetate folder, had code, name and company on a metal plate, but no address. The address information will make it easier for outside firms—car rental companies, hotels, etc.—to use the card for credit and thus broaden its use.

The reissuance, to be completed between Aug. 1 and Sept. 30, is being handled for the airlines by Farrington Manufacturing Co., Needham Heights, Mass., which made the cards. During these two months, carriers will honor both new and old cards.

Odds & Ends . . .

Here's the explanation, by United president W. A. Patterson, of why UAL reservations switchboard operators have stopped adding "The Radar Line" to their usual greeting: "First, we had used it for some time and had pretty much preempted the identification. Second, we had asked our shopping service counsellor to advise us how the public reacts to this type of telephone commercial and they told us that generally the public does not respond too favorably. According to them, if someone is calling United . . . that person wants to know that he has made a telephone connection with United . . . and then he wants to go about his business of making a reservation. They agree that it is all right from time to time to add a little commercial when there is news value to it, but caution that this can be worn out rather quickly."

Lucrative air freight business was done by Frontier Airlines during high school and college graduation time. Caps and gowns, some 13,000 lbs. of them, were hauled from Denver to towns in six states. The company that rents the caps and gowns has found that air freight pays off. There's a limited time when the attire is in demand and the outfits are rushed back to Denver for a quick dry cleaning and pressing, then returned immediately to the airport for shipment to another point. Thus, the company gets more rentals out of its merchandise.

Top award in the category of 10-second TV ads for "most effective advertising created west of the Mississippi" was given Western Air Lines by the Advertising Association of the West. The cartoon ads feature WAL's "Very Important Bird." The bird, incidentally, is now telecast by WAL in Mexico, where he speaks Spanish.

New cooperative advertising program of American and Lake Central will include six quarter-page ads in Esquire magazine's midwest edition, which begins publication in September. Theme will be "Main Street to the Jet Age." Total cost of $3,500 will be shared equally by the carriers.

Another cooperative campaign has been started by Hertz Rent A Car and United. Full page four-color ads are scheduled in nine consumer and business magazines, pushing the fly-drive idea. UAL offices will feature tie-in counter cards and ad blow-ups in window displays, and there will be special mailings to travel card holders, travel agents and customers.

Extensive survey on South America conducted by Panagra showed that most popular countries with U.S. travelers are Argentina, Brazil, Peru and Chile, most widely visited cities are Lima, Rio and Buenos Aires. Most popular months for visiting South America are February, July and October; average length of stay is one month. About 70% of travelers arranged their trips through travel agents; two-thirds flew tourist class . . . Tips to speed delivery of air cargo to Argentina are contained in a new Panagra folder. The airline plans similar publications, covering rates, documentation requirements, etc., for each South American country.

Good sales promotion: Kimono-clad Japan Air Lines' stewardesses have been serving aboard United's men-only Los Angeles-San Francisco Executive flights and Seattle-Los Angeles Red Carpet service.

Routes on the flight map furnished passengers on Continental Air Lines' Boeing 707s are divided into spaces, each representing 10 minutes jet flying time. Makes the map very easy to follow.

• **Hail to** the Dade County Port Authority. It turned thumbs down on a proposal to install dime-collecting machines on toilet doors at Miami International Airport. The members ruled that going to the toilet is "a great American privilege" and should not be taxed.

• **There are times** when Hoby Beals, of American Airlines, must wonder just exactly how you define the word "temporary." It was 25 years ago that Hoby (whose title now is director of aircraft development-Douglas) was dispatched to Santa Monica to be the engineering department's man on the scene at Douglas Aircraft. His assignment papers read: "Temporary Duty." He's still there.

• **Sign of the times:** Thirty years ago last month, E. O. "Oz" Cocke went to work for TAT, predecessor of TWA. His job: fill 10 seats on the only daily flight out of Los Angeles. Today, as TWA system general manager, one of his many jobs is to fill over 300 seats on LA-New York nonstop jets, to say nothing of all the eastbound seats available on other flights.

• **Guess what fascinated** Andrei Tupolev, Russian aircraft designer, when he visited the Convair plant in San Diego. It wasn't airplanes or manufacturing methods—it was the soft drink machine. Tupolev and his two aides, Alexander Arkhangelski and Sergei Yeger, put in their dimes and then prevailed upon B. F. Coggan, general manager at San Diego, to summon a mechanic and open the machine. They were intrigued by operation of the relays and the methods which produced Dixie cups of root beer and other drinks.

It takes a lot of paper to run an airline. This 12-foot-plus shelf of manuals is reference material just for the overhaul and maintenance of American Airlines' Boeing 707s and Lockheed Electras. Several of the volumes are eight inches thick. Shown holding one of the manuals is Jeanie Crossland, receptionist at AA's jet maintenance and engineering center, Tulsa.

• **There's considerable** head-scratching at Trans-Australia Airlines. A highly technical graph arrived at engineering headquarters, together with a memorandum which said: "Please replace the attached chart with one already in your possession."

• **When you leave** Natrona County Airport, Casper, Wyoming, you see a sign: "You are entering a danger zone —a public highway. Please drive carefully. We want you to fly again." Idea was brainstorm of airport manager Jim Gooder.

• **If it doesn't** accomplish anything else, CAB investigation of the Air Transport Association has served one good purpose. Investigators turned up a file for Bill Becker, operations and engineering director, that had been missing for six months. Incidentally, there are some 1.6 million documents in ATA's files. CAB's staff, which has already been plodding along for some four months, won't be through until September.

• **Design changes** in new aircraft sometimes come about because of the strangest yet most practical reasons. Take the Boeing proposal for a cargo jet with a "swing tail." Boeing originally designed the tail to swing up, feeling that this is most efficient both from the structural and economic standpoint. One factor presented a problem: the lavatory in the cargo jet is located way back in the swinging section, and operators just couldn't tolerate what would happen if it were swung up with the tail. Now the Boeing tail swings to the side.

• **A 28-year-old airline** which has no planes, no employes and only $481 worth of assets is going out of business and no one cares very much. It's Uraba, Medellin and Central Airways, a Delaware corporation formed in 1931 by Pan American World Airways to fly between Turbo and Medellin, Colombia under a concession granted by the Colombian government. For 16 years, Pan Am held two-thirds of the stock and has held all of it since 1947.

Last year UMCA took in $76,745 and had expenses of $135,165. Since it started operations, it has accumulated a loss of $615,117. Now the Civil Aeronautics Board has okayed UMCA's application to abandon the route because of the unfavorable traffic trend, the increasing costs to UMCA (and Pan Am) and the competition. And no one has objected.

• **Color of** United Air Lines' stewardess uniform for the DC-8 will be "peige." This is designer Raymond Loewy's name for a rose-beige color featured in his decorative scheme for the cabins of the UAL planes. Actually, the uniform blends so well with the DC-8 interior that the girls may have to keep moving so passengers can tell where they are—although any passenger who can't distinguish between an attractive UAL stewardess and a seat back is ill-adapted for jet travel (or anything else).

• **What's the shortest** airplane delivery flight? Lockheed Aircraft Corp. can probably claim the record. When it delivered Western Air Lines' first turboprop Electra, the flight was made from the Burbank factory to the carrier's base at Los Angeles International Airport. The time: five minutes.

• **A U.S. aircraft manufacturer** found itself in an embarrassing position recently. The No. 1 secretary in its overseas office was arrested for making away with a fairly large sum (in excess of $10,000) from the firm's coffers. She had charge of accounting for the office.

• **Those pre-loaded containers** sure speed baggage deliveries for jet passengers. They also reduce airlines' damage claims. But in at least one case the carrier didn't misroute just one suitcase—it sent an entire container to the wrong destination.

• **British reaction** to the traffic control problem: A BOAC pilot flying San Francisco-New York at 22,000 ft. was asked by Salt Lake controller for immediate descent to 16,000. Hesitating, the pilot replied: "I'll have a go at it, but I'm not sure I can take my machine with me."

LETTERS

(Contd. from page 13)

over other inspection means, there are some applications where X-ray is the only method of detecting a flaw. The landing gear strut is an example of this. The cause of failures of this unit was faulty welding in the attachment of the strut to the crosshead. The vendor who manufactures these units now makes use of X-ray in production inspection to prevent similar failures.

H. H. GALLUP, Director
Flight Test & Inspection, TWA
Kansas City, Mo.

How About Gift Travel?

To the Editor:

As a design engineer in aircraft for the past ten years I have followed the progress of commercial air transportation closely as a reader of American Aviation —and now *AIRLIFT*.

I know the airlines are greatly interested in generating more ticket sales. In this particular problem, unique and novel approaches seem to be needed.

The promotional gimmick I have in mind is to sell air travel to oldsters who have never flown. Many other commercial enterprises use the gift certificate to generate business. Why not a gift certificate redeemable toward the purchase of an airline ticket?

Hundreds of thousands of young families have migrated from one part of the country to another, leaving the oldsters behind to live out their lives where they were born. My idea is to give the oldsters an incentive to travel by air to visit their children.

On Christmas I send my parents in New York a $20 airline gift certificate. On Mother's Day, birthdays, anniversaries, a $10 certificate is sent. With a few of these in hand, the parent adds the additional cash and purchases an airline ticket. How about getting the airlines to promote this idea?

RICHARD C. HOFFARTH
Glendale, Arizona

Absolutely Our Best!

To the Editor:

As you probably know I have read nearly every issue of American Aviation since you started to publish it and now feel that I must tell you that in my opinion your 10th Annual Air Progress Issue of May 1959 is absolutely the best of its kind I have ever read.

To qualify myself to make such a statement I have, even before you started your magazine, been sales manager of several commercial aircraft firms after which I became Executive Assistant to the Chairman of Trans World Airlines until Jack Frye got into his celebrated argument with Howard Hughes.

Meanwhile I've been in and out of Government service as the occasion required with the major part of my government work involving dealings with the aircraft industry. One of the most interesting Government jobs I have held is my present one as a Loan Officer with Export-Import Bank of Washington.

ROBERT E. LEES
10605 Wheatley St.
Kensington, Md.

COCKPIT

By CAPT. J. D. SMITH

Airport Aid: Aviation Deserved What It Got

Congress recently reached a compromise agreement on the Federal Airport Aid program. In essence, this compromise agreement continued the present arrangement allocating $63 million annually for the next two fiscal years. No doubt many in aviation will be disgruntled with these amounts.

It is quite easy to be very critical of the Administration and Congress for their handling of the Airport Aid Bill; as in my case—I have been saying that nowhere in the United States do we have a commercial airport capable of matching the volume of traffic which our present so-called antiquated ATC system can handle.

When one takes into consideration that the Senate originally approved $467 million and the House $297 million for the four years it is even easier to be extremely critical of our legislators. That is, until one attempts to determine *why* the large difference of figures, and *why* the relatively small sum of $126 million was OK'd.

An analysis of testimony before Congress clearly shows that, if anything, aviation is lucky to have the airport aid program continued.

From the taxpayers' standpoint there is a very healthy philosophy currently hanging over Congress—namely, balance the budget and in addition justify what you are spending.

That Congress was initially receptive to the airport aid program is vividly shown by their original allocations. However, when it came time to reach a compromise agreement, the joint committee obviously had difficulty justifying its earlier decisions. The record developed through hearings did not support a financial program beyond that proposed by the Administration.

While I do not subscribe to General Quesada's philosophy in supporting the Administration's tapering down process on federal airport aid—nevertheless it must be admitted he is on solid ground when pointing out that states cannot spend what already has been allocated. Therefore, increasing funds would result merely in adding substantial sums into escrow for the next two years which could be better spent elsewhere.

$12 Million Locked Up

For example, General Quesada's testimony before the House Interstate and Foreign Commerce Committee stated that during fiscal year 1959, 18 states had failed to program their apportioned share which resulted in locking up over $12 million which will be lying idle for the next year. Additionally, in the last four years 14 states have never made full use of the funds allocated under the 75-25 formula (75% apportionment, 25% discretionary).

It may well be that many of these states accomplished airport improvement through military assistance at joint use airports. If so, the record does not show it. Whether the funds come from FAA or from the military the end result is the same—federal aid. Airport operators or states should have made this point crystal clear because, as it now stands, at least 18 states do not contemplate use of federal airport aid this coming year. Even worse, the record strongly infers that at least 20% of allocated funds, regardless of size, will not even be programed.

States, local communities and airport operators should make known their intentions regarding airport expansion to FAA. These intentions should be realistic and should outline financing capability.

A Golden Opportunity

The airlines also missed a golden opportunity. Instead of quibbling as to where the money should go, the carriers should have pointed out how severely the current inadequate airport system is affecting the airlines economically. They should have clearly outlined the hundreds of millions they have already invested in airport equipment—should have positively demonstrated that federal airport aid is not a give-away program but an investment which will be returned many times over in (1) reducing unnecessary expenses (2) permitting greater industry expansion (3) bringing about a much-improved overall schedule reliability, particularly in short haul operations (4) increasing even further the safety of operations.

Federal aid may not be discussed during the next session of Congress; if not, most assuredly it will be during 1961. No one in his right mind can deny that federal aid toward developing an adequate airport system is desperately needed.

Instead of waiting for airport improvement programs to be presented for approval, FAA should take the leadership in assuring that the next time this subject appears before Congress there is presented an intelligent program which does not beg for funds, but clearly justifies substantially increasing federal aid to airports.

Even though the current airport aid record is in a sorry mess, there is one ray of light. Mayor Poulson of Los Angeles has presented a program showing that hopefully in the not too distant future there will be at least one good operational commercial airport in the United States.

One can easily criticize the Federal government in their handling of the airport aid bill. However, in view of the current record, and while it grieves me to say so—aviation is lucky to have kept what it has. Another exhibition like this and federal airport aid will disappear.

ABOUT PEOPLE

IN THE AIRLINES

BRAWNER

STERNBERG

Organizational changes at National Airlines include naming of **Jean C. Brawner,** former senior v.p.-treasurer, as executive v.p., and **Walter Sternberg,** senior v.p.-sales and public relations, as senior v.p.-market development. In addition to responsibility for creating new market development and service standards, Sternberg will handle advertising and public relations. **Charles Sharp,** former assistant v.p.-traffic and sales, was named v.p.-traffic and sales. **Rockwell Drake** was elevated from chief accountant to treasurer.

At Delta, **Robert L. Griffith** was elected a vice president. He was asst. to president.

Two retirements were announced at Northwest Airlines. **Malcolm S. Mackay,** executive v.p. for eight years, has retired to devote full time to personal business interests. He will continue as a director. **Linus C. Glotzbach,** 17-year veteran, retired as v.p.-personnel because of ill health.

Thomas D. Stuart was elected v.p.-industrial relations of Pacific Northern Airlines. He joined PNA in 1956 as industrial relations director.

TWA's new organization plan has resulted in more changes. **W. L. Trimble,** Paris, who has been general transportation manager of the international region, was elected v.p.-transportation of the region. **John Mead,** director of industrial relations, is now assistant v.p.-industrial relations, and **S. L. Higginbottom** was elected assistant v.p.-engineering flight test and inspection, Kansas City.

Major changes at the district sales manager level were also made by TWA: **James H. DeRevere,** dsm in Boston for 11 years, takes a similar post in Chicago. **Richard Spater,** dsm in Italy since 1953, fills the Boston job. **Charles R. Mathews,** Cleveland dsm for 13 years, succeeds Spater. **John P. Brock,** in Washington for 14 years, becomes dsm in Frankfurt, and **William Love** transfers from Frankfurt to Washington.

Other TWA reassignments: **Robert D. Mueller,** former system director of flying, to assistant v.p.-flight operations in the transportation division; **J. I. Greenwald** from general manager of overseas passenger service to assistant v.p.-passenger service; **John N. Martin** from general sales staff to v.p.-sales of Atlantic region; **Joseph W. Letzkus** from v.p.-sales of Middle and Far East region at Cairo to v.p.-sales of western region, Los Angeles, replacing **Robert E. Montgomery,** who becomes v.p.-sales of international region, Paris, with responsibility for all sales overseas; **Pierre Desautels,** v.p., placed in charge of national accounts, succeeding **C. E. McCollum,** who will continue in a sales advisory capacity until his retirement next January; **Richard Mazzarrini** from v.p.-sales of European region to v.p.-international sales development, New York.

R. E. Clipson, v.p.-operations of TACA International Airlines since 1953, was named v.p. and general manager. **Enrique Sol** was appointed executive v.p., **George McHugh** general traffic and sales manager, and **Claude Taylor** operations manager.

Melvin A. Brenner, American Airlines' director of schedule planning and forecasting, was elected an assistant v.p.

BRENNER

BOOTH

T. M. Needham, North Central's superintendent of stations, was promoted to director of ground operations, a new post. His former job is taken over by **Robert Baker,** regional station superintendent, Madison.

Robert Booth, who has been Braniff Airways' manager in Colombia, was transferred to Dallas as manager of international sales. **Harry Marples,** manager in Ecuador, transfers to Colombia, and is succeeded by **Jose A. Salvador,** formerly in the sales department in Ecuador.

Norman Reader, former public information director of the French Tourist Office in North America, was named public relations manager of Air France's North American and Caribbean Division.

Continental Air Lines created two new posts: **J. E. Anderson,** of the Kansas City sales staff, was named southeastern interline and agency sales representative, headquartered in Washington, D.C. **Lacy White,** former San Francisco dsm, becomes western regional interline and agency sales manager, Los Angeles.

Lan Caldwell resigned as Capital Airlines' chief engineer to join Lockheed's missiles and space division as a staff scientist.

Janice Thomas, who has been a Bonanza Air Lines hostess for the past year and who also worked in reservations and sales, was named assistant to the president-public affairs.

Ray Costello, formerly v.p.-traffic and sales of Pacific Air Lines, is now v.p.-traffic, and **Max King,** former v.p.-public relations, is v.p.-sales. **Richard C. Withers** was named to the new post of passenger service manager.

Dr. Ludwig Lederer, medical director of Capital Airlines, was installed as president of Aerospace Medical Association (formerly Aero Medical Association). He will select a Washington site as national headquarters for the organization.

AMONG THE SUPPLIERS

Thor E. Stephenson was elected president of Canadian Pratt & Whitney Aircraft Co. Ltd., succeeding **Ronald T. Riley,** who died June 24. Stephenson, who had been executive v.p., joined the firm in 1956 after serving as director of aircraft production in Canada's Department of Defense Production.

George S. Schairer, Boeing Airplane Co.'s research director since 1957, was elected v.p.-research and development, and **H. W. Haynes** was promoted from assistant controller to controller. Boeing also established two new positions: director of business planning, filled by **Edgar J. Doolittle,** former New York management consultant; market research chief in the Seattle Division sales department, filled by **Richard J. Trainor,** research analyst.

Frank L. Murphy was named public relations manager of United Aircraft's Pratt and Whitney Aircraft division, succeeding **John F. Smith,** named assistant to **William P. Gwinn,** United Aircraft president.

Rolland Boardman, service manager of Piper Aircraft Corp. for 10 years, is now manager of purchases.

Henry P. Steier is the new corporate director of public relations for Lear Inc. Formerly he was special assistant for technical information to the FAA Administrator, and for three years served as electronics editor of American Aviation Publications.

Vic N. Thacker was appointed president and a director of Rotol Inc., Arlington, Va. Thacker succeeds **Jack Staples,** who returns to England to take a post with the parent company.

Harry H. Greenwald was elected to the new position of senior v.p. of Pacific Airmotive Corp.

Kenneth T. Kitchin was named sales manager for commercial products of AC Spark Plug Division of General Motors.

Dan L. Cahill, formerly sales engineer in Collins Radio's southern region, was named sales promotion manager of lightweight aviation products, responsible for promotion in the private and corporate radio market.

OTHERS IN AVIATION

Clayton L. (Ted) Burwell, who has been executive director of Independent Airlines Association, was elected president, succeeding **George S. Patterson.** Burwell will also continue as general counsel of the supplemental air carrier group.

Martin Dyke was elected president of California Eastern Aviation and **Jorge Carnicero** was re-elected board chairman and chief executive officer. Dyke formerly headed the company's Landair division.

William B. Becker, 14-year veteran with Air Transport Association, was appointed director of operations and engineering. He has been acting director for the past eight months.

Charles C. Gaudio, formerly gen. mgr. Air Express Div. REA, named pres. Charles W. Smith Assoc., aviation management consultants specializing in sales and traffic, also v.p. of Barrington's Traffic Service.

IN THE AGENCIES

Donald G. Schuler, former executive officer of Airways Modernization Board, becomes assistant director of FAA's National Airways Facilities Experimental Center, Atlantic City. **Dr. James L. Goddard,** a career Public Health Service officer, appointed FAA's first civil air surgeon.

After 30 years of service with FAA and predecessors, **Ora W. Young** has retired as chief of FAA's jet plans division. He served more than 12 years as administrator of CAA's Region One.

PAR AVION

By ANTHONY VANDYK

• **Impressions of Tu-114**—It is difficult not to be impressed—favorably and unfavorably—by the Tupolev Tu-114, the world's largest commercial transport. We got quite a feeling of vertigo at the top of the special steps that had to be hastily built to enable passengers to enter the Russian aircraft when it made its first appearance in the West at the Paris Air Show. The huge contra-rotating propellers are responsible for the fuselage being some 40 feet above the ground.

Inside the cabin the signs "Put on Oxygen Masks" in addition to the more conventional ones immediately raised queries as to the efficiency of the pressurization system. The most interesting feature of the cabin was the group of private staterooms (complete with berths) with plastic partitions and outside walls, reminiscent of the airship era.

The accent of the Tu-114 seems to be on comfort and this is perhaps not such a bad idea. For on a long nonstop flight, such as Moscow-New York, the passenger would certainly appreciate such accommodations and the central "dining room." But as for the economy of such an arrangement for the operator—Nyet.

• **Keeping down with the joneses**—A lively rooter for cheaper fares is Vickers-Armstrongs (Aircraft) Ltd. The British company's plea for lower fares is part of a new drive to obtain additional Vanguard orders. Bob Handasyde, Vickers' sales manager, sums up the Vanguard in three short sentences: "It is the biggest potential money-maker ever designed for short and medium haul. It can boost traffic by enabling fares to be slashed. And on most short routes it has quicker block times than the jets."

It is Handasyde's belief that a "Keeping up with the Joneses" race on short and medium haul jets can "only lead either to a major economic crisis, or to fare increases which will even further restrict passenger traffic . . ."

The Vickers official paints a gloomy picture of the present situation. He says: "Expense account travel is showing signs of stagnation and of moving away from first-class to cheaper services. Money is tight and airline net profits are slender where they exist at all. At the same time, many operators are planning big increases in capacity especially on long haul, and there are grave doubts as to whether this capacity is going to be taken up."

What is the answer? According to Handasyde it can be best described as an airline effort aimed at "Keeping down with the Joneses." In other words, the mass travel market has to be tapped and new passengers brought into the air by an appeal to the purse. And by cutting fares by up to 50% the Vanguard would do this, Vickers claims.

• **Too Many DC-3 Replacements?**—Too many companies are making too many DC-3 replacements for too few customers. This seems to be a fair appraisal of the present position. Neither Fairchild nor Fokker look as though they are going to make any money on the F-27 business that they have accumulated to date.

Now the small market for DC-3 replacement aircraft is further split by the British government's decision to order into production the Handley Page Dart Herald and the Avro 748, both using the same powerplant as the F-27 and the Grumman Gulfstream. British European Airways was clearly not too happy about being forced to take three Dart Heralds for use on its routes in Scotland which are unsuitable for Viscounts. Chairman Lord Douglas said: "BEA has no major requirement for this size of transport."

Nonetheless, the operation of the Dart Herald by BEA for a five-year period and a similar arrangement for a BOAC subsidiary to operate a small fleet of Avro 748s will give the aircraft good showcases. For this reason the idea of the British government to lend the turboprop transports to the airlines has considerable merit. An aircraft in operation is far more likely to sell to foreign customers than one which is just a piece of brochuremanship. But for BEA and the BOAC associate, the operation and debugging of the unproved transports is likely to be expensive.

• **An Arab combine?**—The latest development in the rapid expansion of the airlines of the Middle East is an official approach from the headquarters of the Arab League to certain manufacturers of jet transport equipment, requesting proposals for aircraft.

This jet fleet is required to link the Arab League countries with Western Europe, the Far East, South Africa, Australia and South America. It seems likely that the aircraft would be owned by an organization similar to Air Union, with participation by the various Arab League airlines. It is not yet known whether this organization, which may be known as Air Arab, will take over regional services in the Middle East and medium-haul operations to Europe, India and Africa. But undoubtedly such integration is desirable to reduce the cost and improve loads on the various "prestige" routes, most of which are currently been operated with rather low factors by each of the competing Middle East airlines.

Competition on the routes to Europe is particularly severe since here not only the Middle East carriers compete among themselves but also have to contend with competition from the long-haul services of U.S., European and Asian carriers. Yet the expansion of the Middle East carriers to Europe shows no sign of stopping.

Kuwait Airways is the latest to announce plans to start operations to Europe. Like Egypt's Misrair, Iraqi Airways and Middle East Airlines, which already fly to Western Europe, it has Viscounts. The other Middle East carriers serving Europe operate Douglas equipment—Air Liban and Lebanese International Airways fly DC-6Bs while Iranair uses DC-4s.

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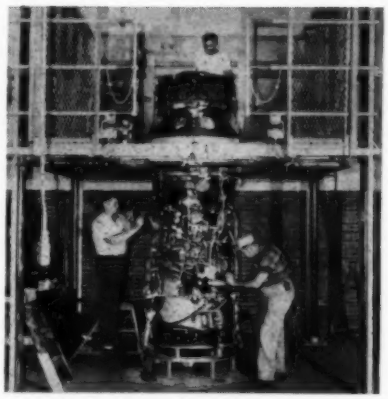
AA in Business in Jet Overhaul

American Airlines has started operations at its new $20 million Jet Maintenance and Engineering Center in Tulsa, Oklahoma.

The base consists of more than 1 million sq. ft. of space under roof for overhaul of turbine airplanes. Broken down, American has devoted 186,000 sq. ft. to engine overhaul, 121,000 sq. ft. to aircraft overhaul, 50,000 sq. ft. to component servicing, and the remainder to stores and administration.

To date, American has only overhauled some 12 JT3-C6 engines, but is aiming at a peak rate of 40 engines per month by early fall. Scheduling calls for overhaul of eight airplanes, four 707s and four Electras, each month beginning in September. Airframe inspection is now being conducted at route stations.

Only engines to be overhauled at Tulsa are the JT3s, since Allison is responsible for maintenance of the leased 501-D13s used in the Electra.



American uses special-built vertical workstands, manufactured by the Colson Corp., Chicago.

American takes an average of nine days to route a JT3 engine through the shop.

Current FAA approval requires JT3 overhaul at 800 hrs., but the limit will be raised to 900 hrs. pending satisfactory results from samples of the first engines. Ultimately, the overhaul time will go to 1,000 hrs.

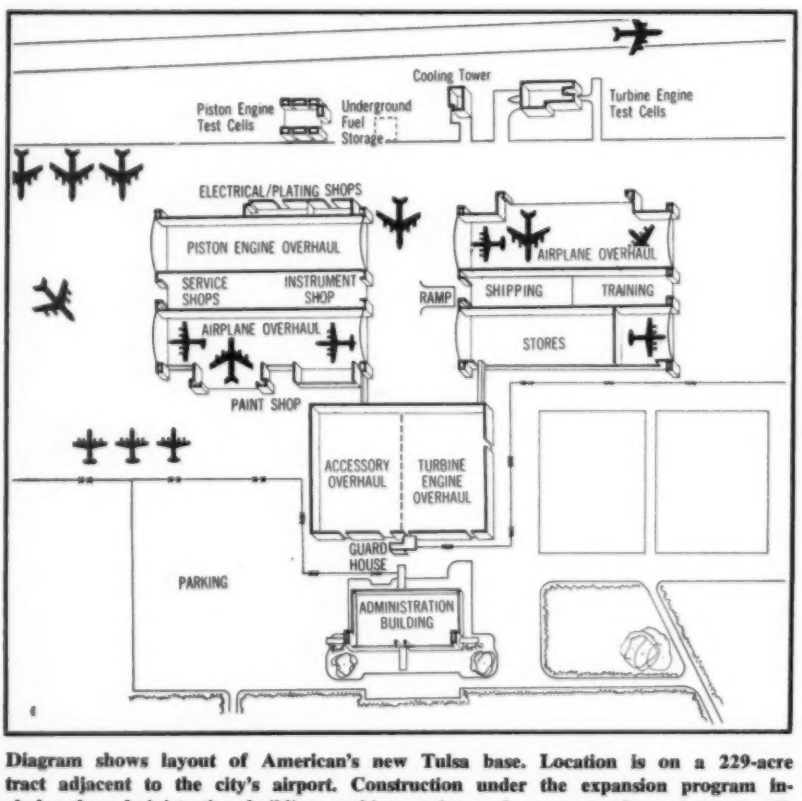


Diagram shows layout of American's new Tulsa base. Location is on a 229-acre tract adjacent to the city's airport. Construction under the expansion program includes the administration building, turbine engine and accessory shops, jet test cell, and a 75,000 gal. jet fuel storage tank. American has purchased more than $3.5 million in equipment for the jet center.

What About Lighting for Transport Maintenance

Built-in lighting for aircraft maintenance, a much neglected area of transport design, may become a prime factor in the economics of night-time turnaround service of jet transports.

This was the warning sounded by United Air Lines' J. A. Aldrich during a recent meeting of the Illuminating Engineering Society's newly formed aircraft lighting committee.

Aldrich contends that about 90% of lighting efforts are devoted to the cockpit, about 9% in the cabin and maybe 1% for service and maintenance. He suggests that airlines must insist on built-in maintenance lighting on future designs and be able to pay for them in writing the original specs.

Automatic test equipment won't eliminate the need for such lights. Mechanics still have to work on the aircraft after the trouble is located, the UAL engineer notes.

He attributes the neglect of maintenance lighting to the fact that designers don't maintain airplanes. "Sitting in comfortable offices . . . is not much help. Even in mock-up evaluations the idea never enters anybody's head."

United Has an Answer to Keeping Cabins Clean

United Air Lines and the Kimberly-Clark Corp., Neenah, Wis., have collaborated in the design of a disposable runner which can be stretched down the aisle of aircraft and then rolled up and used again when needed. The runner is made of a new fabric called Kaycel, manufactured by K-C. It is completely disposable and the first one tried by UAL was used 18 times before being thrown away.

Both a time and money saver, the material comes in rolls 19 in. wide and 48 ft. long or 21 in. wide and 63 ft. long. UAL figures that the cost is 30% less than previous runners.

Maintenance Tips?

Has your airline come up with a new answer to an old problem? Developed new shop techniques? Is it service testing new equipment? Become an AIRLIFT contributor by sending us the details. Fees paid on acceptance.

CAB Reverses Examiner in Southeast Case

New routes in the Tennessee area have been awarded to Southern Airways, as CAB failed to follow the recommendations of its examiner in the Southeastern States Local Service Area Investigation.

In a press release decision, CAB said it tentatively voted, 3-2, to give Southern the routes instead of Southeast Airlines, present intrastate operator in Tennessee. Members G. Joseph Minetti and Louis J. Hector dissented in favor of Southeast. Examiner Paul Pfeiffer had recommended that Southeast be found fit to operate and said it should seek financial support from the state of Tennessee for routes within that state.

The press release, which isn't final until the full decision is written, was unusual in that the Board failed to vote either way on one route award. The announcement said Mackey Airlines would be allowed to operate from Tampa and St. Petersburg to Ft. Lauderdale via West Palm Beach/-Palm Beach and from Miami to West Palm Beach via Ft. Lauderdale until Aug. 20, 1961. No mention was made of Mackey's application for an extension to Atlanta, and it was assumed that it had been denied until queries to the Board revealed that no vote had been taken. Presumably action will be taken before issuance of the final decision.

Awards to Southern, for five years: Nashville-Tri Cities (Bristol, Kingsport, Johnson City) via Rockwood, Knoxville and Morristown; Tri Cities to Huntsville, Ala., via Knoxville, Chattanooga and Shelby-Tullahoma; Nashville to Jackson, Miss., via Columbus, Miss., and Muscle Shoals, Ala.

Southern also received extension of its Atlanta-Panama City, Fla., route to New Orleans via Eglin AFB; extension of Atlanta-Memphis authority for five years with Muscle Shoals and Decatur, Ala., added; extension of Charlotte-Memphis route from the intermediate Tuscaloosa to New Orleans via intermediates; Columbus-Mobile segment realigned and extended to New Orleans.

Eastern was given five-year authority at St. Augustine as a Jacksonville-Daytona Beach intermediate, and received permanent rights at Ocala, Gainesville and Melbourne and to fly Orlando-Tallahassee. National's temporary authority at Panama City was made permanent and right to serve Melbourne was extended for five years. Delta was suspended at Meridian (north-south flights), Hattiesburg and Selma, Eastern at Muscle Shoals and Huntsville (east-west) and National at Gulfport-Biloxi.

FAL, WCA Awarded Route Extensions

CAB issued its final decision in the Montana Local Service case, extending routes of Frontier and West Coast. Press release decision in the case was announced eight months ago.

FAL was given a route from Great Falls, Mont., to Williston, N.D., via Havre, Glasgow and Wolf Point, three years; Billings-Great Falls via Lewistown, Mont., three years; extension beyond Riverton/Lander, Wyo., to Idaho Falls via Jackson, permanent.

WCA was awarded extension beyond Burley/Rupert, Idaho to Salt Lake City via Logan and Ogden; a new segment from Boise to co-terminal Lewiston, Idaho/Clarkston, Wash., and Pullman, Wash./Moscow, Idaho via McCall. Sun Valley was added as an intermediate for two years between Boise and Twin Falls.

Northwest was terminated at Miles City; United at Ogden, Twin Falls and Rock Springs; Western at Jackson, Logan and Ogden and also at Lewiston as long as FAL is authorized to serve the point.

West Coast Cautioned on Subsidy Requirement

Concerned about the increase in West Coast Airlines' subsidy needs following introduction of the Fairchild F-27, CAB has cautioned the carrier about continuance of this trend.

In a show-cause order setting a new temporary mail rate, CAB noted that WCA's break-even need in the six months ended Mar. 31, 1959 was $1,026,177 greater than in the six months ended Sept. 30, 1958. The increase coincided with introduction of the F-27. A rise during the initial period of integration is normal, but airline management is under a responsibility to keep the increase at a minimum, CAB said.

ROUNDUP OF ACTIONS

APPLICATIONS

Pan American World Airways applied for permanent or temporary authority to operate between Baltimore/Washington and Mexico City.

British West Indian Airways asked for authority to operate between Barbados, W.I. and New York, and between London and New York via Shannon, Iceland, Azores, Bermuda, Gander and Montreal and beyond New York to Jamaica.

Trans-Canada Air Lines applied for amendment to its foreign air carrier permit to add New York as a co-terminal on the present Halifax-Boston route under the U.S.-Canada bilateral agreement.

The six airline parties to the mutual aid strike pact filed amendment to the agreement, striking a clause relating to diversion of traffic by a struck party to other members. In approving the agreement, CAB had said the clause was not in the public interest and that traffic should be diverted according to passenger convenience. Members are American, TWA, United, Pan American, Eastern and Capital.

Delta Air Lines requested permission to suspend service at Ciudad Trujillo, Dominican Republic until Apr. 1, 1960 on its New Orleans/Houston-San Juan route.

ACTIONS

Capital Airlines' service to Flint and Grand Rapids is inadequate in some instances, CAB examiner Richard Walsh said in his initial decision. Service is inadequate from Flint to Detroit, New York and Washington and from Grand Rapids to Detroit, Milwaukee, Minneapolis, New York and Washington, he stated, recommending that CAB maintain jurisdiction in the case so if Capital fails to improve service it might investigate to determine if another trunk should compete with, or replace, Capital.

Quaker City Airways and Los Angeles Air Service were issued certificates as a result of CAB's findings in the Large Irregular Air Carrier Investigation last February.

Seven of Frontier Airlines' intermediate points should be renewed, CAB examiner John Cannon recommended. Montrose/-Delta, Colo., should be renewed permanently, with five-year extensions for Gunnison, Colo., Rawlins, Wyo., and Miles City and Sidney, Mont., he said. Wolf Point, Mont., should be served on the present route until FAL opens service to that city on the new route authorized in the Montana Local Service case. Safford, Ariz., should be served for five years or until decision in the Arizona-New Mexico Area Investigation, not started yet.

MAIL RATES

CAB intends to set final subsidy-free mail rates for Aloha Airlines and Hawaiian Airlines. Statement of provisional findings said the rate would be 81¢ per mail ton-mile, the service rate currently in effect for both lines. Aloha and Hawaiian went off subsidy on Apr. 1, 1957 but again received help a year later because of the sugar strike. CAB said effects of the strike have been ended and that the carriers' future appears bright.

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The Convairs are the most popular choice of businessmen throughout the world for large executive or corporate aircraft and have long measured up to the exacting standards set for them in this type of flying.

The Canadair-Convair '540' is powered by NAPIER engines and is the latest model, and the jet-prop successor to this very popular series of aircraft and provides even higher standards of all-round performance.

2 Because its roomier cabin space makes it functional for every business purpose

The roomy cabin interior of the Canadair-Convair '540' provides spacious work-in-flight area for as many as 24 people without any sense of crowding, or all the room you could desire for custom designed interiors of your choice.

MOST IMPORTANT TO YOU

The '540' is a product of Canadair which, as a member of the General Dynamics family of companies, is associated with the following corporate divisions that constitute this important enterprise and represent it in its many exciting fields of activity: Convair, for the Atlas satellite and missile programme; Electric Boat, for atomic-powered submarines; Stromberg-Carlson, for nuclear instrumentation; General Atomics, for Triga research reactors; Liquid Carbonic, for production of industrial and medical gasses; and Electro-Dynamics, for the production of electro-mechanical control equipment.

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On the Canadair-Convair '540' will receive our immediate attention: contact the Director of Commercial Sales, P.O. Box 6087, Montreal.

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EQUIPMENT WORLD

Doppler Navaids have set the stage for the most competitive sales pitch that has greeted airline electronic specialists in years. At least five major equipment producers have made their bid. Each represents at least a $1 million development.

Doppler systems now under development consist of the radar portion, which uses the frequency shift between the transmitted and received signals to determine the aircraft's drift and ground speed, and a computer portion which uses the speed and drift information to obtain the aircraft's position relative to its desired track.

On long flights, the aircraft approximates a track by making a series of connecting rhumb lines from a great circle line. Each of the rhumb lines is considered to be a stage of the entire trip, and the Doppler computer information tells the aircraft's angle to the track, the distance to go along the present stage, and the amount of error between the actual and desired track.

Emphasis here is placed on the radar portion of the system which obtains ground speed and drift information.

CANADIAN MARCONI

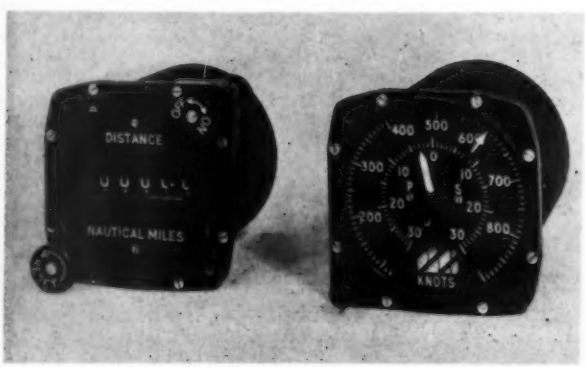
Canadian Marconi Co., Montreal, Que., CMA-620 series. The Canadian Marconi sensor, like other makes, serves as an input to a system computer.

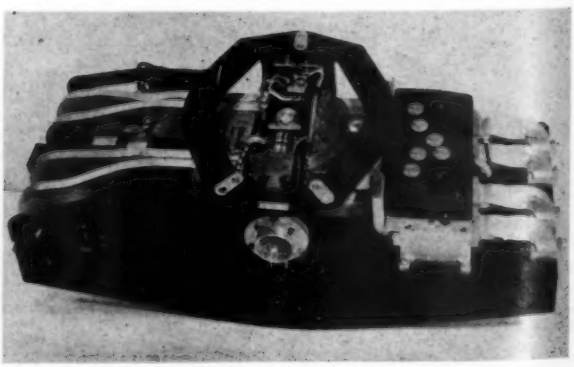
Signal tracking is accomplished by Doppler frequency shift compared by a variable oscillator. System includes a lock-checking procedure which continuously checks that the tracker is on the doppler spectrum.

The computer portion of the system, the CMA-601, is used to resolve sensor information and heading to produce track made good and track error.

Equipment weight, exclusive of the computer portion, is 70 lbs. Altitude range is 50 to 50,000 ft., ground speed is from 100 to 900 kts. System conforms to ARINC Characteristic 540 and fits into a ⅜ ATR.

Circle No. 101 on Reader Service Card.





BRITISH MARCONI

British Marconi Wireless Telegraph Co., Ltd., Chelmsford, Essex, England, Model AD.2300.

This unit is the sensing portion for the AD.2000 computer. Indication can be used as an input to the autopilot, and makes automatic correction for changes in magnetic variation.

The AD.2300 uses a continuous wave system with an electromechanical tracker which requires no calibration. When combined with the computer portion, complete information on distance to go, track made good, and error distance, can be obtained.

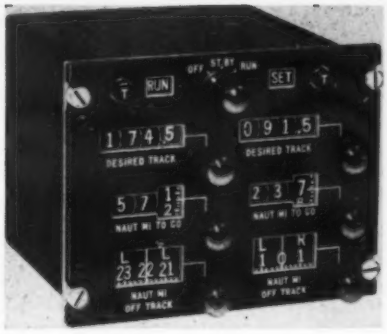
Weight of the system, including computer and antenna, is 130 lbs. Equipment will operate from 150 to 50,000 ft. with ground speed from 80 to 900 kts. and drift angles of plus or minus 45 degrees.

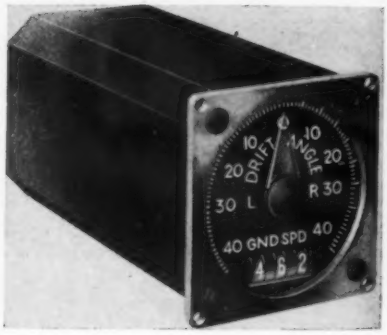
Circle No. 102 on Reader Service Card.

RYANAV

Ryan Aeronautical Corp., San Diego, Calif. RYANAV automatic navigation system is designed for military use (including transport) and is outside the frequency spectrum planned for commercial airline doppler radar navaids. The APN-67 is the latest Ryan system developed for groundspeed and drift information. At present the APN-67 is being used by the Navy for high altitude wind studies.

Circle No. 103 on Reader Service Card.





GPL RADAN

General Precision Laboratories, Inc., Pleasantville, N.Y. RADAN 500 and TNC-50.

The combination of RADAN 500 and TNC-50 provides a self-contained package for aerial navigation. The RADAN 500 acts as the sensing element, using Doppler radar. The unit beams r-f pulses at the ground and measures the Doppler shift of the echos. This measurement allows visual and electrical outputs of ground speed and drift angle. With a heading signal from any compass system, the RADAN 500 also develops track made good.

The RADAN 500 system has an accuracy of 0.2% plus one kt., a speed range of 70 to 1,000 kts., and drift reading of plus or minus 40 degrees. It is built to ARINC Characteristics 540 and 543.

Circle No. 104 on Reader Service Card.

BENDIX DRA-12A

Bendix Radio Division, Baltimore, Md., DRA-12A. System is frequency modulated continuous wave type, operating at 8,800 mc. The transmitter tube and power supply can be housed in a 3/8 ATR rack along with modulation and beam switching circuitry. Complete system, including computer and frequency tracker, can be placed in a standard 1/2 ATR package. System weight is 60 lbs. Drift angle reading is plus or minus 40 deg., and ground speed range is 100 to 1,000 kts. Operation is possible at altitudes up to 60,000 ft. Includes passive, four beam polar array antenna.

Circle No. 105 on Reader Service Card.

COLLINS

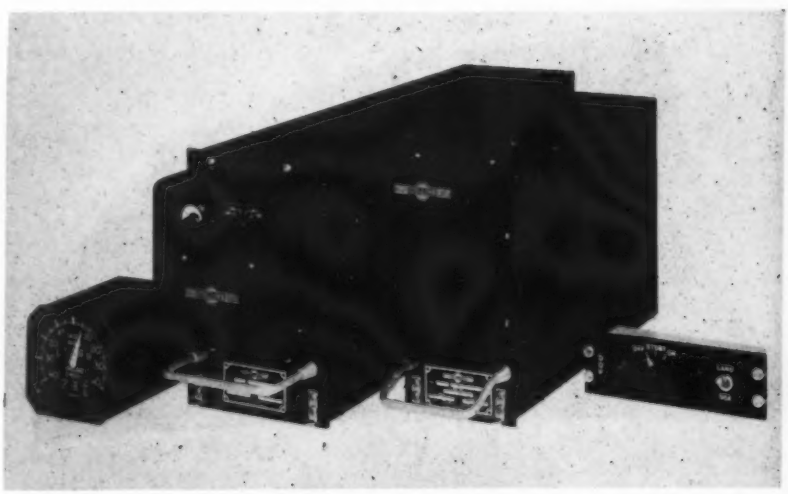
Collins Radio Co., Cedar Rapids, Iowa, Model DN-101 and NC-103 Doppler systems.

The Collins Doppler system uses the ground speed and drift information of the DN-101 as an input to the NC-103 for distance to go along segment and track angle and cross track data.

The DN-101 system sends and receives three beams of X-band energy to the ground and measures the frequency change. The system uses the third sideband of a frequency modulated continuous wave.

The system weighs 59 lbs., or in combination with the NC-103, a total of 98 lbs. DN-101 speed range is 70 to 1,000 kts. with plus or minus 40 degrees drift. Ground speed readings appear on an odometer-type dial. Unit conforms to ARINC Characteristic 540.

Circle No. 106 on Reader Service Card.



A matter of family interest

Pratt & Whitney Aircraft has a "family interest" in what happens to its engines throughout their many years of operation.

When a Pratt & Whitney Aircraft engine leaves our plant it's as good as we can make it. It's built to stay that way if properly serviced, using replacement parts that are exactly the same as original parts.

We are concerned over recent reports of increased use of bogus* replacement parts and the potential hazard they present to the dependable and efficient operation of aircraft engines. Counterfeit parts are difficult to detect. They may look genuine but they could cause trouble.

As the booklet "The Problem of Bogus Parts", published by Flight Safety Foundation, Inc., points out, "Another reason for serious concern is that the airworthiness certificate of your aircraft may be suspended or revoked if bogus parts are used in its repair, overhaul or maintenance."

Protect yourself against the problem of bogus parts by specifying original manufacturer's parts, and by dealing with authorized distributors or reputable overhaul or maintenance agencies. Don't take chances by buying your spare parts from a source which doesn't have a family interest in your engine.

**"The Problem of Bogus Parts," published by Flight Safety Foundation, Inc. A free copy of this informative booklet may be obtained by writing to Pratt & Whitney Aircraft, East Hartford 8, Connecticut, Attention: Service Manager.*

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East Hartford, Connecticut

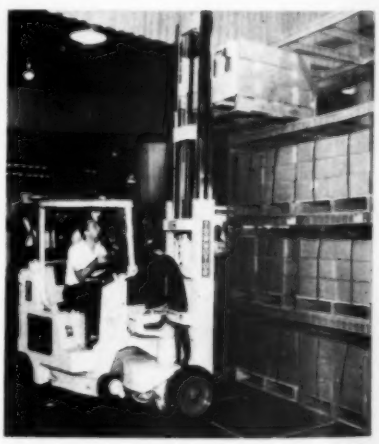
CANADIAN PRATT & WHITNEY AIRCRAFT CO., LTD.
Longueuil, P.Q., Canada

NEW PRODUCTS

Test Stand

George L. Nankervis Co., Detroit, Mich. is making a test stand called the universal hydraulic components test stand, Model 9510. The stand, now being used to test some 98 components in the DC-8 and Lockheed Electra, is self-contained and allows maximum flexibility in handling different components. It has three hydraulic pumps which provide a range of 20 gpm at 3,000 psi to 10 gpm at 50 psi. An air-operated hydraulic intensifier produces 9,000 psi. Fluid temperature is maintained between 165F and minus 5F.

Circle No. 107 on Reader Service Card.



Fork Lift

Towmotor Corp. of Cleveland, O. has developed a fork lift truck which can stack loads at right angles. The truck can perform in aisles of six feet or wider and can swivel left or right. It lifts loads at speeds of 70 fpm. The model is called the "Naro-Aisle-Stack" and is available in either LP-gas or gasoline versions.

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Oil Cooler Tester

An oil cooler test machine is being built for Northwest Airlines by Magnus Chemical Co., Garwood, N.J. The machine eliminates manual handling of coolers. Units to be tested are placed on the machine platform and then lowered into a vat of hot water by a hydraulic lever.

At the completion of the test, the level is raised, and the platform automatically brings the cooler out of the water. The machine will handle a work load of up to 370 lbs. and operates at 80 psi. A roller platform for easier loading and unloading is also available.

Circle No. 109 on Reader Service Card.

Weather Computer

Computer from Jeppesen & Co., Denver, Colo., allows pilots to "dial" a typical weather situation and obtain recommended action. The computer, called the Pilot's Weather Computer CK-1, has a map on one face with complete teletype symbol legends.

Under the dial are descriptions of typical frontal and air mass weather conditions with explanations of the cloud systems and flying conditions associated with each. On the back side of the dial, different thunderstorm types and icing conditions can be set up with recommended action indicated.

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Emergency Lights

Stonco Electric Products Co., Kenilworth, N.J. is offering a line of emergency floodlights in sizes from 500 watts to 150 watts. The lights are adjustable and have large cast aluminum positioning knobs for focus lock-in at any angle. All units are corrosion-proof.

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Circle No. 25 on Reader Service Card.

Trim Compensator

The Giannini pitch trim compensator system has been specified as standard equipment for the DC-8. The system makes up changes in trim characteristics which occur when the airplane enters the transonic speed range by applying a continuous trim force and permitting the pilot to trim the airplane in a normal manner.

The unit, which takes up less than 200 cu. in. of space, contains a servo-computer which calculates Mach number, compares it with a system authority curve, and gives a command signal to a screw-jack actuator which applies correcting force to the pilot's column. Made by G. M. Giannini & Co., Pasadena.

Circle No. 112 on Reader Service Card.

INFO FOR THE ASKING

Fire fighting—Booklet from Kidde & Co., Inc., Belleville, N.J., describes the complete line of Kidde equipment for fire protection. Included is data on equipment for each class of fires and available accessories such as carts and hoses.

Circle No. 113 on Reader Service Card.

Sonic cleaning—Bulletin from Acoustica Associates, Inc., L.I., N.Y., outlines a method of cleaning miniature differentials in less than one minute without disassembly. Also available is a booklet on ultrasonic cleaning of gyros.

Circle No. 114 on Reader Service Card.

Jet fuel pumps—Catalog from Reda Pump Co., Bartlesville, Okla. describes a line of submergible fuel pumps for underground fueling systems. These pumps vary from one to 240 hp and deliver 50 to 2,000 gpm. Included are graphs and typical installations.

Circle No. 115 on Reader Service Card.

Airport signs—Booklet from Standard Signs, Inc., Cleveland, shows layouts for installation of airport marker signs. These signs can be obtained for a variety of information and contain lighting systems for night operation.

Circle No. 116 on Reader Service Card.

Jeppesen products—Catalog from Jeppesen & Co., Denver, Colo., lists the varied line of navigational aids available from that company. Included are illustrations and specifications of Jeppesen manuals, charts, and computors, plus a number of special plotters and cases.

Circle No. 117 on Reader Service Card.

Floodlights—Crouse-Hinds, Syracuse, N.Y., has published a pocket-size catalog on the selection of floodlights, installation suggestions, and lighting calculations. The 178-page book lists complete specifications of the Crouse-Hinds line.

Circle No. 118 on Reader Service Card.

Air guidance—Commonwealth Engineering, Dayton, O., has made available reprints of a description of an aircraft guidance system based on a thumb contactor. The system uses the contactor as a faster-than-visual means of transmitting commands to the aircraft control system during ILS approaches, collision avoidance, takeoff, etc.

Circle No. 119 on Reader Service Card.

T-Hangars—Dresser-Ideco catalog contains information about its line of T-Hangars. Lists aircraft which can be housed in each size unit, and shows floor plans, door options, and interior designs.

Circle No. 120 on Reader Service Card.

Engine speed—General Electric has issued a 12-page bulletin on engine speed measuring equipment. Information on magnetic-drag tachometer indicators and tachometer generators for jet and reciprocating engines is included, complete with descriptions, ratings, cross-reference tables, and drawings.

Circle No. 121 on Reader Service Card.

Heated windshields—Four-page bulletin shows line of heated windshields for DC-3, Lodestar, and other business aircraft. Windshields are automatically controlled, and require 28 v. power. From Sierracin Corp., Burbank, Calif.

Circle No. 122 on Reader Service Card.

Ground power—Leach Corp., Inet Div., Compton, Calif., is distributing a group of brochures on ground power equipment it has sold to major airlines. Contains list of purchasers and number of jet aircraft bought by each carrier, plus complete description of truck and trailer mounted power supply units. Bulletins also available on a new miniature tape recorder.

Circle No. 123 on Reader Service Card.

Self-locking inserts—Bulletin on the E-Z-Lok self-locking, threaded insert is now

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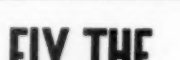

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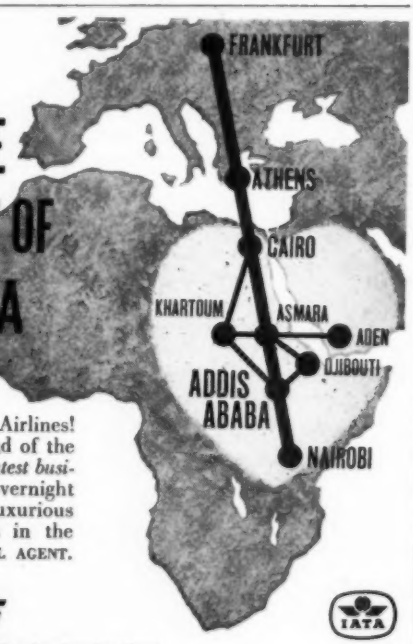

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NOTES ABOUT SUPPLIERS

• Airwork Corp. is now offering complete sales and service of Aeroquip hoses. Airwork's shops at Atlanta, Cleveland, Newark, and Washington, D.C. are equipped for proof testing and inspection of all Aeroquip hoses, including Teflon.

• Federal Aviation Agency's National Aviation Facilities Experimental Center has purchased a Sabre "Jet Vac-Matic" airport sweeper for use at its Atlantic City base. NAFEC had been leasing the machine since last November. Manufacturer is Sabre Aviation Equipment Co., Brookfield, Ill.

• Aerotherm Corp., Bantam, Conn., has been awarded a contract by United Air Lines for construction of the rear lounge in UAL's DC-8s. The lounge will include a double seat and facing triple seat with a large table between. Deliveries are to begin late this month.

• Lockheed Aircraft Service has completed initial tests on the Curtiss-Wright and Air Logistics sound suppressors. The tests were conducted at Republic Aviation's Farmingdale, L.I. plant. Units evaluated were C-W's portable exhaust suppressor and Air Log's Model 11,000. Engines used were Pratt & Whitney JT3C-6s. Purpose of the tests is to select suppressors for use at the LAS Idlewild base.

• Cessna Aircraft Co. is now marketing aircraft batteries under its own trademark. The batteries are designed to Cessna specifications and are being installed in all of the company's production aircraft. New units carry an 18-month prorated guarantee and are obtainable through the Cessna distributor-dealer organization.

• Hazeltine Technical Development Center, Inc. has set up shop at Wier-Cook Municipal Airport, Indianapolis in the facilities formerly occupied by FAA's Technical Development Center. Hazeltine has leased 150,000 sq. ft. of space from the city for development and production of electronic equipment and systems.

EN ROUTE

Wayne W. Parrish

Two Haircuts in Russia

Good Haircut in Tashkent .....Visit to Samarkand

(Photos by WWP)

Mrs. WWP and friend in old Samarkand

You may have noted that this current series is entitled "Two Haircuts in Russia." There is a reason. In the early winter of 1955 I made a solo jaunt behind the Iron Curtain between haircuts. So the first series (1956) was called "Russia Between Haircuts," to make sure no one would think I was posing as an expert.

The current trip was longer (19 days) so I decided to have two haircuts in Russia. I've already reported on the first one in Moscow where the tonsorial expert turned out to be a fruit and made a couple of passes at me. Nobody had made a pass at me since I was a youth when a Y.M.C.A. bird told me in cooing terms at a summer camp that he liked me because I had pretty legs. (No stampede, now, that friendship broke up pretty fast!) But it is not exactly coincidental that there was a fairy in a barber shop patronized by foreigners in Moscow because the Russians are pretty adept at luring similar types from abroad and often are able to use blackmailing methods in due course.

Well, back to the second haircut. I picked Tashkent, capital of Uzbekistan in Central Asia, as the proper place. I'm pleased to report that it was a good haircut with a hot water shampoo. The shop in the old Intourist hotel was quite modest, nothing fancy like we have, but the barber was Russian, not Uzbek, and although we couldn't understand each other, sign language worked fine. I don't feel that I've been to a country until I have at least one haircut there.

Flies—and Flies

One of the real surprises about Central Asia was the flies. For some reason I had thought that the Soviet Union had advanced far enough to control flies in the major cities, especially since Red China makes so many boasts about insect control. But man and boy, I've never been so pestered by flies except in some parts of the Middle East.

We had arrived in Tashkent at dusk. Along with our Intourist gal, Raya, we went to the hotel dining room for dinner. One room didn't have a single table cleaned up, dirty dishes were everywhere, and flies were in droves. Hearing some music in the other room, we went there and found a table. Lots of local people drinking and eating, many of them poorly dressed, but a three-piece orchestra was working awfully hard and not very successfully trying to produce some western type music. The flies were abominable.

One single squirt can of the stuff available in every store in America could have cleaned out the place. But the local people didn't seem to mind that these disease carriers were contained by the thousands in this restaurant—an Intourist hotel at that. Later I was to find that Uzbekistan has done nothing much about insect control. At the local circus in a permanent building one night the flies were just as bad, maybe worse. I don't mean a few flies, I mean thousands. It would be so easy to eliminate them from inside buildings. I've never seen them so active at night indoors.

New hotel in Tashkent

Samarkand

Next morning we flew in an IL-14 to Samarkand, just an hour away, a legendary place as old as history itself. The hotel there is awfully poor, so Intourist prefers to make the city a one-day excursion from Tashkent; I would advise this one-day deal most strongly unless you have a hardy constitution. A lot of Russia is really quite primitive and another nearby famed historical spot, Bukhara, doesn't have a single foot of modern plumbing, and the filth accumulated through the many centuries isn't exactly pleasant for tourism.

However, Samarkand is well worth a visit. There is an observatory built in 1428, perhaps the oldest in the world. The ruins of ancient buildings are beautiful. The local markets with their big supplies of fine looking fruits and vegetables are fascinating, the costumes of the people are colorful, and the tomb of the 14th century oriental conqueror, Timurlane, and his family is worth seeing. This area was overrun by one conquest after another in the early centuries. Study your history books before traveling there.

Back to Tashkent in the late afternoon over a desert country lined with treeless mountains on the south, we were told that our bags had been moved to the new hotel. I was elated. Anything to get out of the dreary, musty, undusted room with its badly-lighted and cold-water bathroom in the old place.

'New' Hotel

So we arrived in front of a seven-story building that was quite impressive relative to its surroundings. Floodlights bathed the facade like an exposition building. The opening had taken place only a month earlier. I expected to find the newest and best the Soviet Union had to offer.

The lobby had marble floors but was rather bare. When we went to the elevator, it wasn't operating, in fact it hadn't started functioning at all. So up three flights of broad stairs we trudged to our room. It had double beds, a desk, several chairs, a very big wardrobe, and a small bath. But it was not a large room and when we looked into the bathroom we thought it hadn't yet been cleaned from the previous guests. It was a wreck.

We had our Raya get a maid who went to work to clean it up, but when she finished we learned that it wasn't dirt that made this newly-built room so dirty. The plumbing fixtures were badly chipped and the construction workers had just done a very sloppy job of finishing up. It was an incredible mish-mash of workmanship for a new building. In fact the entire building was poorly done and like most structures in the Soviet Union, it will begin falling to pieces in a relatively short time.

Also I found that being in a brand new hotel didn't prevent the place from being ridden by flies and other insects, nor did it insure hot water. Seems that hot water was available only two hours in the early evening. On our last day there wasn't any hot water at all. But the beds were better, and clean, and the dining room was large and infinitely better than the old hotel.

The Goatee

Next morning I was in the lobby looking at some souvenirs in a showcase when I heard a voice behind me say, "That looks like Wayne Parrish." Never surprised at anything in this world, I turned around to find that well-known travel agent and former ASTA president, Bert Hemphill, and his traveling companion, Dan Scariano. Hemphill's mark of distinction consists of a goatee, a beret and blue twinkling eyes and an ever-present smile. He hails from Los Angeles, while Scariano has a travel agency in Beverly Hills just a few blocks from AAP's offices out there. Okay, it's a small world.

And we ended up our stay in Central Asia setting some new entertainment records which Uzbekistan won't soon forget. Tell you about those next issue.

Aircraft Data Cards

Aircraft selected for the data card series in this issue of *Airlift* are the Fairchild F-27A, the Cessna CH-1C helicopter, and the Canadair CL-44.

The Cessna CH-1C is a new version of the Army-tested YH-41 Seneca. It has a new symmetric-section tail surface for improved longitudinal stability and a redesigned tail rotor.

Fairchild's F-27A is basically the F-27 with Rolls Royce RDa.7 engines replacing the RDa.6s. The new powerplants add about 28mph to the cruising speed with a slightly reduced range.

Canadair CL-44 is a swing-tail turboprop airfreighter which uses the basic airframe of the Bristol Britannia.

FAIRCHILD F-27A

Aircraft Data Card
August, 1959

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CESSNA CH-1C

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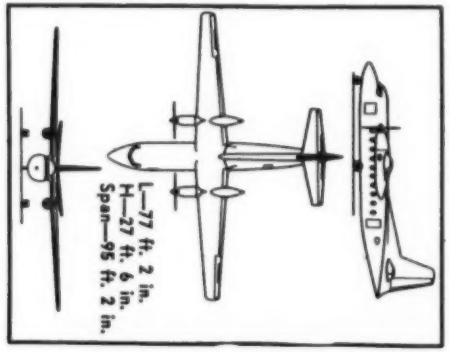
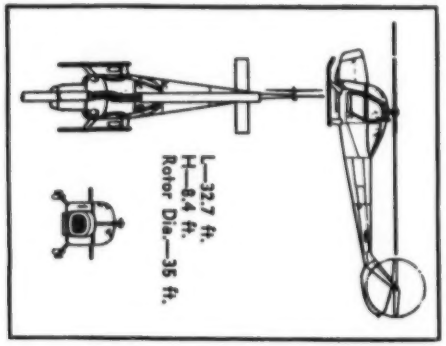


FAIRCHILD F-27A

TYPE: 44-passenger airline or executive transport. WEIGHTS: empty—22,476 lbs.; gross—36,228 lbs. POWERPLANTS: two Rolls-Royce RDa.7 Dart turboprops rated at 2,105 ehp. PERFORMANCE: max. cruise speed—300 mph; range—1,570 mi. (airline); 2,100 mi. (corporate). MFG.: Fairchild Engine & Airplane Co., Hagerstown, Md.

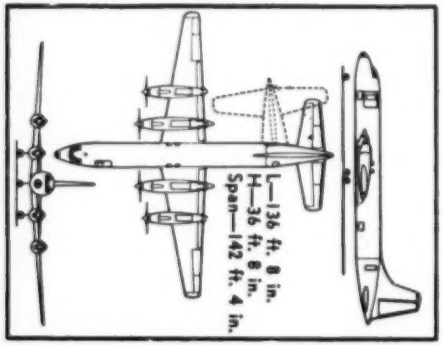
NOTES (for your personal use):



CESSNA CH-1C

TYPE: 4/5 place light personnel transport helicopter. WEIGHTS: empty—2,050 lbs.; gross—3,100 lbs. POWERPLANT: 270 hp supercharged Continental reciprocating engine. PERFORMANCE: max. speed—105 knots; cruise endurance—5.15 hrs. MFG.: Cessna Aircraft Co., Wichita, Kan.

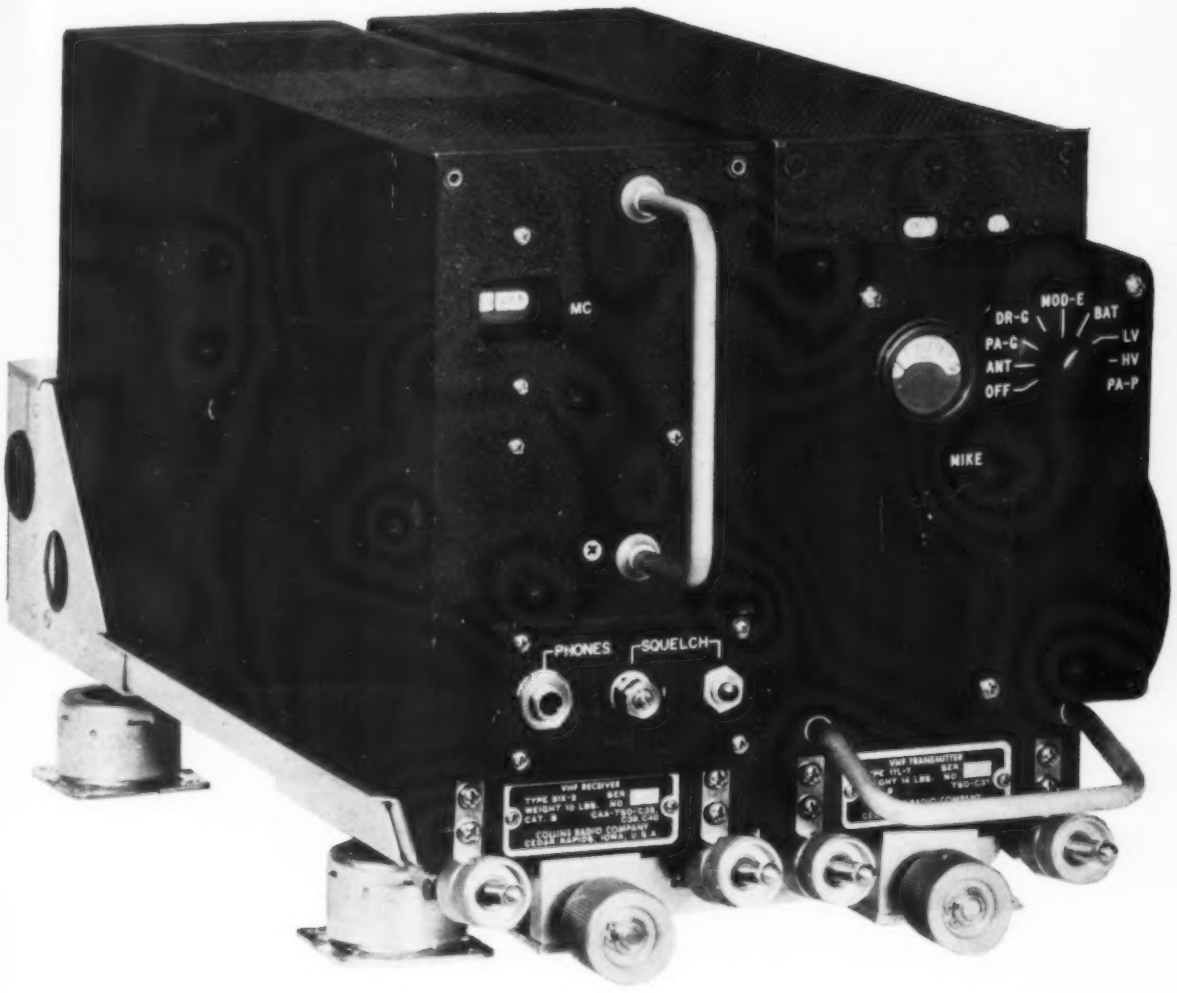
NOTES (for your personal use):



CANADAIR CL-44

TYPE: four-engine swing-tail freighter and airliner. WEIGHTS: empty—91,728 lbs.; gross—205,000 lbs.; payload—65,000 lbs. capacity or 172 passengers. POWERPLANTS: four Rolls-Royce Tyne 12 turboprops rated at 5,730 ehp. with de Havilland four-blade propellers. PERFORMANCE: cruise speed—400 mph at 20,000 ft.; initial rate of climb—1,190 fpm.; range with maximum fuel—5,000 miles (2 hr. reserves). MFG.: Canadair Ltd., Montreal, Que.

NOTES (for your personal use):



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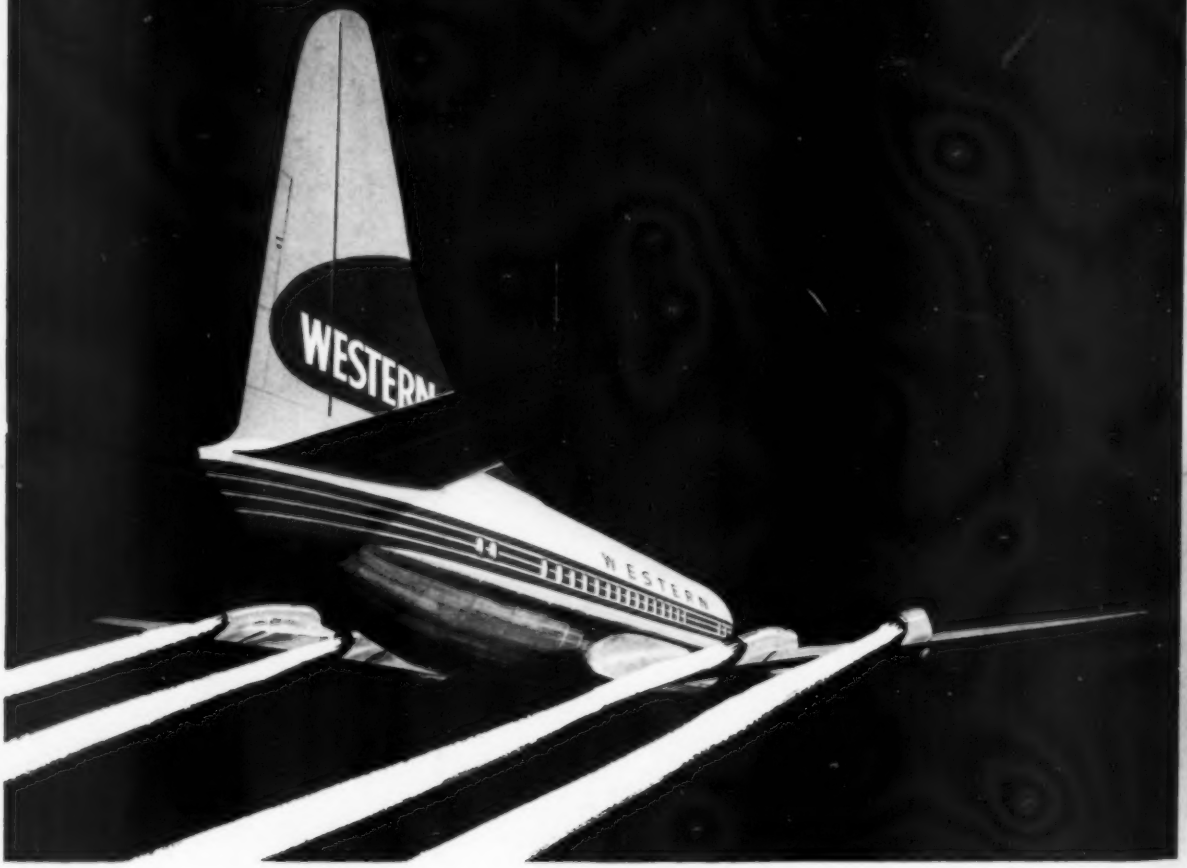

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